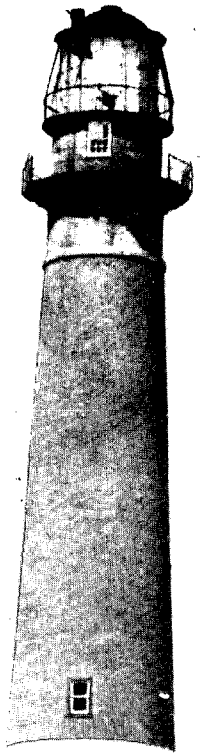
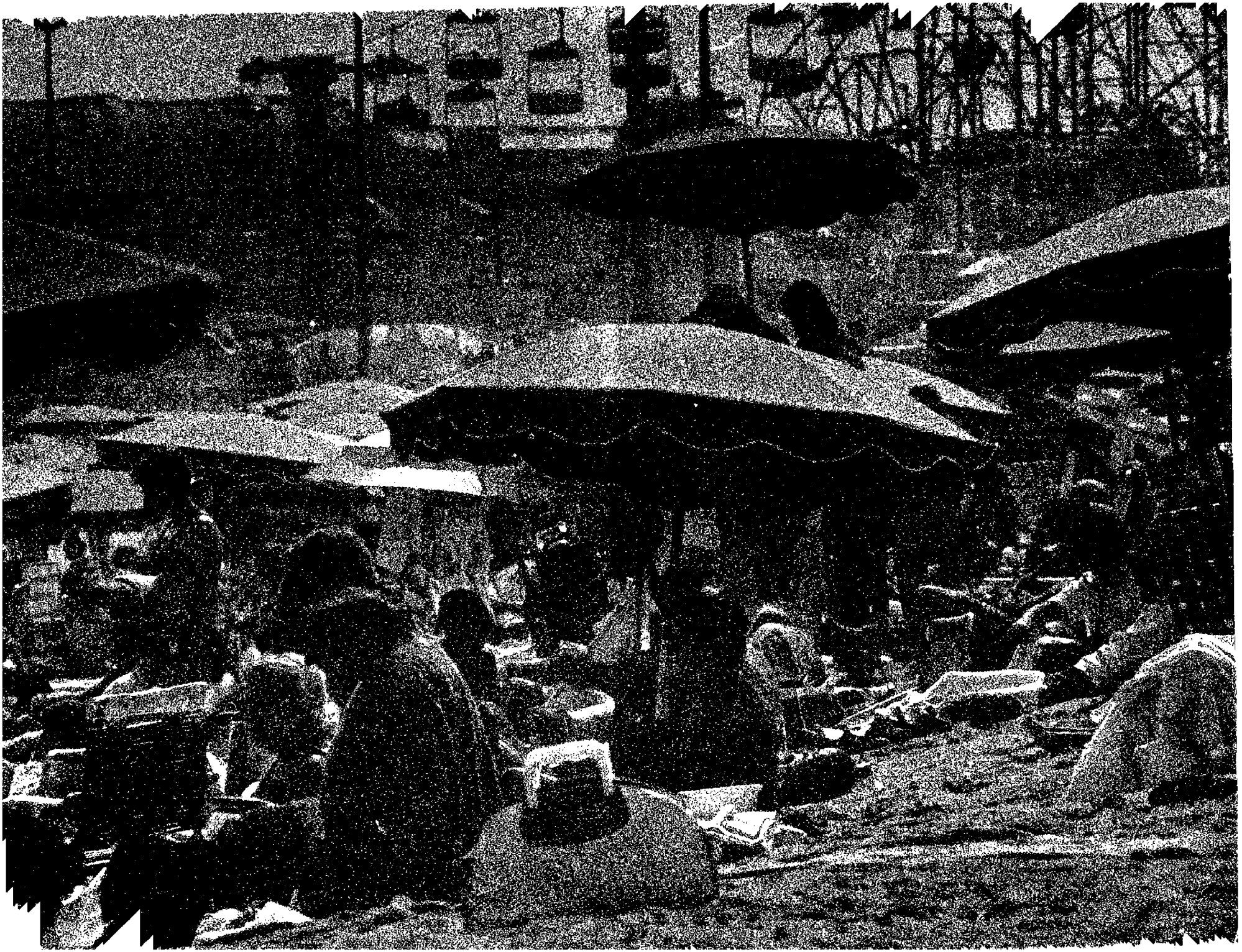
Outdoor Recreation in New Jersey





OUTDOOR RECREATION IN NEW JERSEY

New Jersey Statewide Comprehensive Outdoor Recreation Plan

1973

State of New Jersey
Department of Environmental Protection
Office of Environmental Review

STATE OF NEW JERSEY
OFFICE OF THE GOVERNOR
TRENTON

WILLIAM T. CAHILL
GOVERNOR

Dear Mr. Watt:

My office has reviewed the 1972 New Jersey Comprehensive Outdoor Recreation Plan prepared by our Department of Environmental Protection, which is the designated State agency responsible for the preparation and maintenance of the plan. We are pleased to endorse this plan, and we anticipate no significant deviation in its final printed version.

New Jersey has a vigorous, on-going outdoor recreation program. I am asking that every consideration be given to the early review of this plan in order to continue our participation under the Land and Water Conservation Fund Program.

As the official State document, the plan will profoundly influence New Jersey's outdoor recreation development, and will help the State achieve its goal of providing quality outdoor recreation for all its citizens.

Sincerely yours,

GOVERNOR

Mr. James G. Watt, Director
Bureau of Outdoor Recreation
U.S. Department of the Interior
Washington, D. C. 20240

April 3, 1973

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INTRODUCTION

LEGAL AUTHORITY

New Jersey possesses the legal authority to participate in the Land and Water Conservation Fund Program under provisions of New Jersey Statutes Annotated 13-1B-65 and 13:1D-9(r) which state in part ". . . The department (of Environmental Protection) shall in addition to the power and duties vested in it by this act or any other law have the power to, . . . with the approval of the Governor, cooperate with, apply for, receive and expend funds from, the Federal Government . . "

The Governor's approval was granted in his letter to Mr. G. Douglas Hofe, Jr. of May 13, 1970 then Director of the Bureau of Outdoor Recreation which states in part ". . . Commissioner (of Environmental Protection) Sullivan, acting in the capacity of State Liaison Officer, will have full authority and responsibility to accept and administer funds paid for approved Land and Water Conservation Fund projects."

GOALS AND OBJECTIVES

The principal goals of the 1973 Statewide Comprehensive Outdoor Recreation Plan are the continual accumulation of data on the supply of open space, water resources and outdoor recreation facilities, the degree and nature of demand for outdoor recreation opportunities, the deficiencies and surpluses of available resources in meeting present and projected demands, and the development of a framework for the orderly planning, acquisition, and development of the State's natural resources through a rational program of recommendations and action. The plan has been prepared to meet the following specific objectives:

1. To identify deficiencies in outdoor recreation opportunities in New Jersey and to suggest various means for correcting these deficiencies.
2. To promote access to outdoor areas providing quality recreation experiences for all New Jersey citizens.
3. To outline the responsibilities of the various levels of government and the private sector in the field of outdoor recreation.
4. To illustrate the need for preserving outstanding scenic, cultural, historic and natural resources.
5. To provide a basis for the priority distribution of Land and Water Conservation Fund monies.

SCOPE OF PLAN

With increased leisure time, open space and outdoor recreation facilities will play an increasingly important role in providing a desirable environment for present and future residents of New Jersey. The primary responsibility for open space planning is a public one. Not only is there growing recognition of the nature of the problem, but there also exists a widespread acceptance of the fact that the problems will have to be solved through governmental action.

The 1973 Statewide Comprehensive Outdoor Recreation Plan represents an effort by the State to evaluate New Jersey's

present and future needs relating to the provision of outdoor recreation opportunities. The plan seeks to survey available resources, to determine demand for outdoor recreation opportunities, to recommend an action program to meet existing and projected deficiencies, and to provide a basis for priority allocation of Land and Water Conservation Fund monies.

Because the 1973 Statewide Comprehensive Outdoor Recreation Plan was undertaken as an update of the 1966 plan, the basic supply-demand-needs methodology used in 1966 was repeated in 1973. To make the process more reflective of the changes which have occurred since 1966, however, new information on supply and demand was used.

The inventory of publicly owned open space lands and outdoor recreation facilities for thirteen activities, three more (bicycling, outdoor games and sports, and artificial ice skating) than were included in the 1966 plan, were completely updated. Data on the county and municipal resources were gathered by sending questionnaires for completion by each local jurisdiction. The federal and state inventories were updated by staff of the Department of Environmental Protection. The inventory of private open space lands was not reinventoried and only a sample survey to check changes in the supply of recreation facilities was conducted. Since no significant changes were found in many of the facility totals, the 1966 inventory was considered adequate for use in the 1973 plan for all but four activities: camping, snow skiing, hiking and horseback riding. An in depth inventory of the existing facilities for each of these activities was undertaken for the updated plan by staff of the Department of Environmental Protection.

A special new survey was conducted for the 1973 plan to provide information lacking in the earlier plan on the State's freshwater resources. Each lake, pond and reservoir was listed by name, surface acreage, location (municipality and county), ownership, whether open to public recreational use and what was considered its primary use. Totals by county and planning region provided the basis for much of the discussion of water resource supply and needs.

Demand methodology was again based on the findings and procedures of the Outdoor Recreation Resources Review Commission study used in the 1966 plan. This approach was applied to 1970 census data for New Jersey and the Recreation Sphere of Influence population (portions of New York, Pennsylvania, Maryland and Delaware) as well as revised population projections for 1985 and 2000.

A second special study was undertaken to focus on the recreation needs of urban areas, a topic recommended for separate examination in the continuing planning program of the 1966 plan. The study was undertaken in two parts. The first was a general background survey of the relevant literature and a series of interviews with public officials in urban municipalities. The review identified problems and potential solutions for improving recreational opportunities in densely populated areas. The second phase of the study was a supply-demand-needs analysis of municipally owned facilities in urban communities in New Jersey for activities usually sought close to home. The analysis was based on a "Municipal Outdoor Recreation Survey" first conducted in 1968 and a similar inventory concentrating on the urban areas conducted in 1971. In all, 153 municipalities were included in the study based on criteria of gross population, population density or population growth rate. Participation rates and demand for the activities were derived from recreation standards adapted to the urban environment.

In addition, two studies conducted by the Department of Environmental Protection were incorporated into the 1973 plan. The first was an inventory of designated historic sites conducted by the Department's Historic Sites Section. This study is part of a master plan being developed for the identification and protection of buildings, sites and areas of historic significance undertaken as part of a program under the National Park Service. The second was an inventory of previously identified natural areas and areas of unique natural significance which should be acquired or protected. This study was prepared by the Department's Natural Areas Section.

As part of the planning process, extensive consideration has been given during the past few years to the development of a system for rating projects proposed for funding under the Land and Water Conservation Fund Act. Through the experience gained in administering this program in New Jersey, a priority evaluation system was developed in 1968 and revised in

1973. The priority considerations include 13 factors each given a certain maximum number of points. The system translates the recommendations and priority needs and considerations of the plan into the rating of all proposed projects and the funding of the most desirable proposals.

PLAN MAINTENANCE

The responsibility for maintaining New Jersey's Comprehensive Outdoor Recreation Plan will remain with the Department of Environmental Protection. The Department's commitment to a meaningful and productive continuing planning program is evidenced by the schedule of studies and inventories to be performed by its planning staff during the next five years as described in the Continuing Planning Program Chapter. The other contributing agencies and resource programs which will have significant input into the State's future planning program are identified in the Related Programs Chapter.

The Department intends to conduct the proposed studies with its own staff and the cooperation and assistance of the Division of State and Regional Planning of the Department of Community Affairs. It will, however, when deemed appropriate, engage the services of consultants.

As part of the Department's program to maintain a relevant, comprehensive plan, it will actively seek the involvement of regional and county planning agencies to coordinate related recreation activities.

Summary of Findings and Recommendations

MAJOR FINDINGS

STATE CHARACTERISTICS AND RESOURCES

1. The State of New Jersey is the most densely populated state in the nation.
2. The vast majority of the population lives in the northeastern and central portions of the State leaving large areas of the State in forest or farm lands.
3. New Jersey contains a rich variety of natural resources including geology, topography, water, forests, plant life, and fish and wildlife.
4. New Jersey has many important historic and cultural resources.

DEMAND

1. Factors of population growth, rising family incomes and increasing leisure time have contributed to the rapidly increasing demand for outdoor recreation in New Jersey as they have elsewhere in the Nation.
2. The recreation demand generated by the residents of New Jersey and neighboring states has surpassed the capacity of the existing supply of outdoor recreation facilities for many activities and in many instances has resulted in the reduction of the quality of the individual experience.
3. Swimming ranks as the most popular outdoor recreation activity in New Jersey. During the peak season there is a demand for 40 million recreation days in New Jersey.
4. Driving for pleasure and walking for pleasure are second and third in popularity with peak season demands of over 33 million and 29 million recreation days respectively.
5. Playing outdoor games, ranked fourth in activity popularity, accounts for a demand of almost 20 million recreation days during the peak season.
6. New Jersey's resources experience a high level of demand from residents of neighboring states which constitute the Recreational Sphere of Influence.

SUPPLY OF LAND RESOURCES

1. The public and private sectors in New Jersey provide 651,864 acres of open space and recreational lands. Of this total the public sector owns 473,283 acres and the private sector 178,581 acres.
2. The publicly owned lands are administered by the Federal Government (45,239 acres), the State Government (371,842 acres), and the municipal and county governments (53,772 acres).
3. The State is the major supplier of beach swimming, water acreage for fishing and boating, camping sites, hiking and horseback riding trails, hunting acreage and picnic areas. The county governments are the major suppliers of picnic tables, snow skiing slopes, artificial ice skating areas and golf courses. The municipal governments are the major suppliers of swimming pools, boating areas, ramps and berths, shoreline for swimming and fishing, bicycle trails, natural ice skating areas, and playgrounds, playfields and game courts.

SUPPLY OF WATER RESOURCES

1. New Jersey's 127 mile Atlantic coastline is the State's most valuable natural resource in terms of recreation.
2. The total mileage of New Jersey's numerous rivers and streams approaches 6,448 miles.
3. There are over 50,000 acres of lakes, ponds, and reservoirs in New Jersey. Private interests own 629 of the 965 lakes, ponds, and reservoirs.
4. New Jersey's 55 reservoirs have a total water surface area of 15,936 acres. Less than 4,000 acres are open for public recreation.
5. It is estimated that there are 400,000 acres of marine wetlands in the State.

6. Less than 40% of the State's total water surface area is open to the public for recreational use.
7. New Jersey's water resources are limited in their recreation utilization due to problems of water pollution, limited access, and restrictive user charges.

NEEDS: OPEN SPACE, WATER RESOURCES, FACILITIES

1. 1970 deficits of open space at every governmental level throughout New Jersey amount to 246,952 acres. By 1985 this deficit will grow to 308,072 acres without additional public acquisition.
2. 1970 open space deficits by level of government: Federal Government—40,779 acres, State Government—116,579 acres, county governments—48,708 acres, municipal governments—40,886 acres.
3. The Northeast Region has the greatest open space deficit.
4. The largest 1970 deficit in water-based recreation was found in boating—43,682 recreation days.
5. 1970 facility needs varied from region to region but overall the highest deficits were in outdoor games and sports, bicycling and picnicking.
6. The most critical recreation needs exist at municipal and county levels for day use facilities.

URBAN NEEDS

1. Recreational opportunities in urban areas are limited because recreation has always been one of the unwanted children of municipal budgets.
2. The greatest need in urban areas is for basketball facilities. An additional 3,588 courts are needed to meet current demand for this activity in the State's urban areas. This is followed by playlots (1,975), tennis courts (1,525) and passive areas (1,245).
3. Statewide 32% of the demand for the facilities included in this study is being met by existing facilities. Percent demand being met varied with activity: 78% of the football demand is being met while only 2% of the demand for bicycling is being met.
4. No region had any significant surplus of facilities.

LEGISLATION

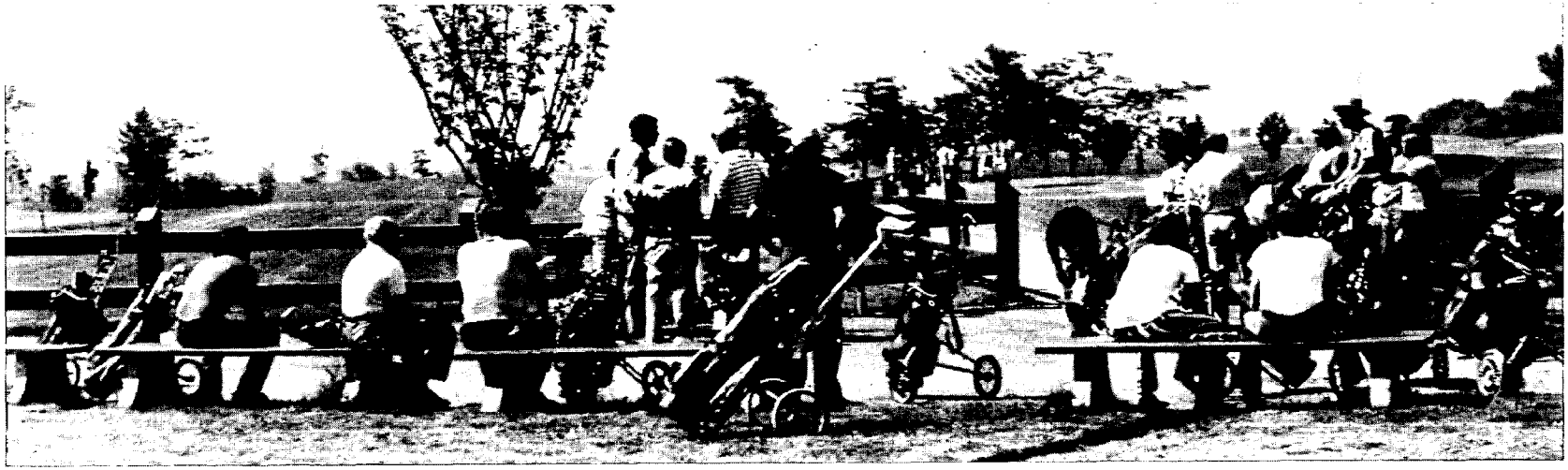
Since 1966 New Jersey has successfully enacted an important legislative program which includes a number of bills having a significant impact on New Jersey's environment. The legislation deals with wetlands protection, liability limitation for private land owners, flood plain control, environmental commissions, bond issues, pesticide control, ocean pollution and noise control.

ACTION PROGRAM

Although the scheduled development programs of municipalities, counties, and the State will provide a substantial number of new recreation facilities, they will fall far short of

meeting all of the 1985 outdoor recreation facility deficits identified in the plan. Continuation of the development programs at their present levels of funding after 1977 would still result in sizable 1985 facility deficits at all governmental levels.

The total state need in terms of land to be acquired by all jurisdictions by the year 1985 is slightly over 300,000 acres. Despite the accelerated land acquisition program which will provide a net gain in publicly owned recreation land of 122,299 acres, it is evident that available funds will not be sufficient to completely fulfill the growing need.



MAJOR RECOMMENDATIONS

In order to address itself to the outdoor recreation needs identified in this plan and to protect and enhance the State's environmental quality, each level of government and the private sector must undertake to increase acquisition of open space and the development of recreation facilities through such actions as the continuation and expansion of funding programs, enactment of new legislation and regulatory measures, continued planning and programming. Major specific recommendations for each level of government and the private sector are set forth in this plan.

GENERAL

In general, all levels of government should emphasize open space acquisition to preserve recreation resources that would otherwise be lost for future public use while continuing to develop recreation areas in an orderly manner.

Each successive level of government should retain a greater percentage of open space holdings in an undeveloped state for conservation purposes.

Each level of government, consistent with its assigned responsibilities, should provide the recreation facilities required to accommodate the unmet recreation demands indentified in the Needs Chapter.

Priority should be given to park and recreation areas that will be easily accessible to the people who are expected to use the areas.

All levels of government should expand existing funding

programs for recreation development and open space acquisition and establish new funding sources where needed.

FEDERAL GOVERNMENT

Continue and expand matching grant programs providing funds to state and local governments for acquisition and development of open space and recreation areas while providing a sufficient level of revenue sharing funding to permit state and local governments to allocate a portion of the funds to recreational uses, especially maintenance and operation, along with the other permitted uses.

Continue and expand funding programs for the planning and construction of water pollution abatement facilities.

Integrate recreation planning as a significant part of interstate and regional planning.

Expand responsibilities to include providing sizable recreation areas in close proximity to large urban complexes of high population density.

STATE GOVERNMENT
(Department of Environmental Protection)

Actively promote and support proposed legislation and programs that would have favorable environmental consequences such as state, regional, and local land use regulations and air and water anti-pollution legislation.

Establish new sources of funds for local and state open space acquisition and recreation facilities development. Specifically we recommend the establishment of a third Green Acres Bond Issue and a funding program for recreation facility development.

Continue to integrate recreation planning as part of total state land use planning.

Provide recreation programs and areas which serve all segments of the State's population including the economically and physically handicapped, and encourage other levels of government to provide similar programs and facilities.

Establish state park and recreation areas within or in close proximity to urban areas.

Continue providing the administrative framework for water quality management programs, funding for the construction of new water pollution abatement facilities and the upgrading of existing facilities, and enforcing the State Water Pollution statutes.

Support legislation that would relieve the property tax burden from non-profit conservation and environmental groups holding open space for preservation purposes.

COUNTY GOVERNMENT

Acquire, develop, maintain, and operate recreation areas to serve the outdoor recreation needs of county residents.

Use a portion of the federal revenue sharing funds to augment the recreation budget for open space acquisition, facility development and maintenance and operation programs.

MUNICIPAL GOVERNMENT

Provide and administer intensely developed, user-oriented facilities easily accessible to the local population.

Use a portion of the federal revenue sharing funds to augment the recreation budget for open space acquisition, facility development and maintenance and operation programs.

Identify and use all available recreation resources including lands and buildings under the control of local boards of education.

Adhere to sound land use principles which recognize the incompatibility of certain uses and the necessity of retaining natural elements for a quality living environment.

Investigate the feasibility of using innovative techniques to meet urban recreation space, facility and program needs.

PRIVATE SECTOR

Non-profit conservation and environmental groups should continue to acquire open space for preservation purposes, especially areas of ecological significance.

Farmers and other private large tract owners, in keeping with ecological limitations to carrying capacity, should consider opening their lands to general public recreational use in view of the state legislation relieving the private owner from

liability except in cases of gross negligence or the charging of fees for use.

Private commercial enterprises should develop day use and overnight recreation facilities such as lake swimming and campgrounds where favorable market conditions exist.

CONTINUING PLANNING PROGRAM

The plan recommends an extensive continuing planning program to be undertaken by the planning staff of the Department of Environmental Protection over the next four years. The Program will include updated inventories of public and private open space and facility supplies. It will also include several studies dealing with demand, urban needs, special groups, recreation standards, environmental education, recreational travel patterns, trails, scenic and recreational rivers, freshwater resources and the Atlantic coastline. Resources and personnel outside the Department will be called upon to help in completing this program whenever necessary.

STATE CHARACTERISTICS AND RESOURCES I

Population and Socio-Economic Characteristics

POPULATION

The population of the United States has increased from less than 4 million in 1790 to more that 204 million in 1970. Although the population growth has exhibited a westward trend, New Jersey's population has grown at a rate equal to or often greater than that of the nation as a whole. Not only has New Jersey's population shown an absolute increase, but this increase has massed into defined urbanized areas with resultant increases in density.

POPULATION DISTRIBUTION

New Jersey officially became the most densely populated State in the nation, 954 persons per square mile, when the 1970 census figures were released. (See map entitled "Population Density 1970.") The major portion of the State's population, approximately 74%, lives in eleven counties which form a corridor between New York and Philadelphia. County population densities range from 13,816 people per square mile in Hudson to 147.3 in Sussex. Nearly 50% of New Jersey's population resides in the five northeastern counties which border the New York City Metropolitan Area creating a population density almost five times greater than the state average. About 89% of the State's population lives in urbanized areas as defined by the U.S. Bureau of Census.

Between 1960 and 1970, Ocean County's population increased by 92.6% and Sussex County's population increased by 57.4%, the highest growth rates experienced by New Jersey's twenty-one counties. Counties bordering the densely populated northeast section of New Jersey experienced growth rates exceeding the state rate of 18.2%, while the five counties comprising the northeast urban region experienced relatively low growth rates. In fact, Hudson County, the most densely populated county in the State, lost 0.2% of its population during

Southbound traffic on the Garden State Parkway approaches the Raritan toll plaza

the ten year span and the number of people living in Essex County, the second most densely populated county, grew by only 0.7%. The rural counties of South Jersey—Salem, Cumberland and Atlantic—experienced population growths below the average state rate.

AGE COMPOSITION

Between 1960 and 1970 New Jersey's population not only increased by over one million people, but the various age groups comprising the population underwent changes relative to each other. New Jersey's age group composition changes closely paralleled national and regional trends. The proportion of New Jersey's population in the under 5 and 25-44 age groups dropped by 2.4% and 3.9% respectively. These percent decreases for the United States are 2.9% and 2.6%, respectively, and for the Northeast Region 2.3% and 3.3%, respectively. During the same time period, the age groups 5-19, 20-24, 45-64, and 65 and over showed increases for all three regions with the exception of the Northeast's 45-64 bracket which remained constant. It should be noted that the 20-64 age group, composed of the primary wage earners, showed a decline in proportion to the total population of 0.2% for the United States and 1.4% for both New Jersey and the Northeast Region (see Tables 1 and 2).

OCCUPATIONAL DISTRIBUTION

The change in occupational distribution is similar for New Jersey, the United States, and the Northeast Region. Across the board, the greatest increases between 1960 and 1970 for all three regions have been in the categories of professional and technical workers and in the clerical and sales workers—a total increase of 5.7%, 7.3%, and 5.6% for New Jersey, the Northeast Region, and the United States, respectively; the greatest decrease has been in the field of operative and labor workers—3.9%, 2.7%, and 2.3%, respectively. (See graph entitled "Occupational Distribution 1960-1970.")

POPULATION DENSITY
1970

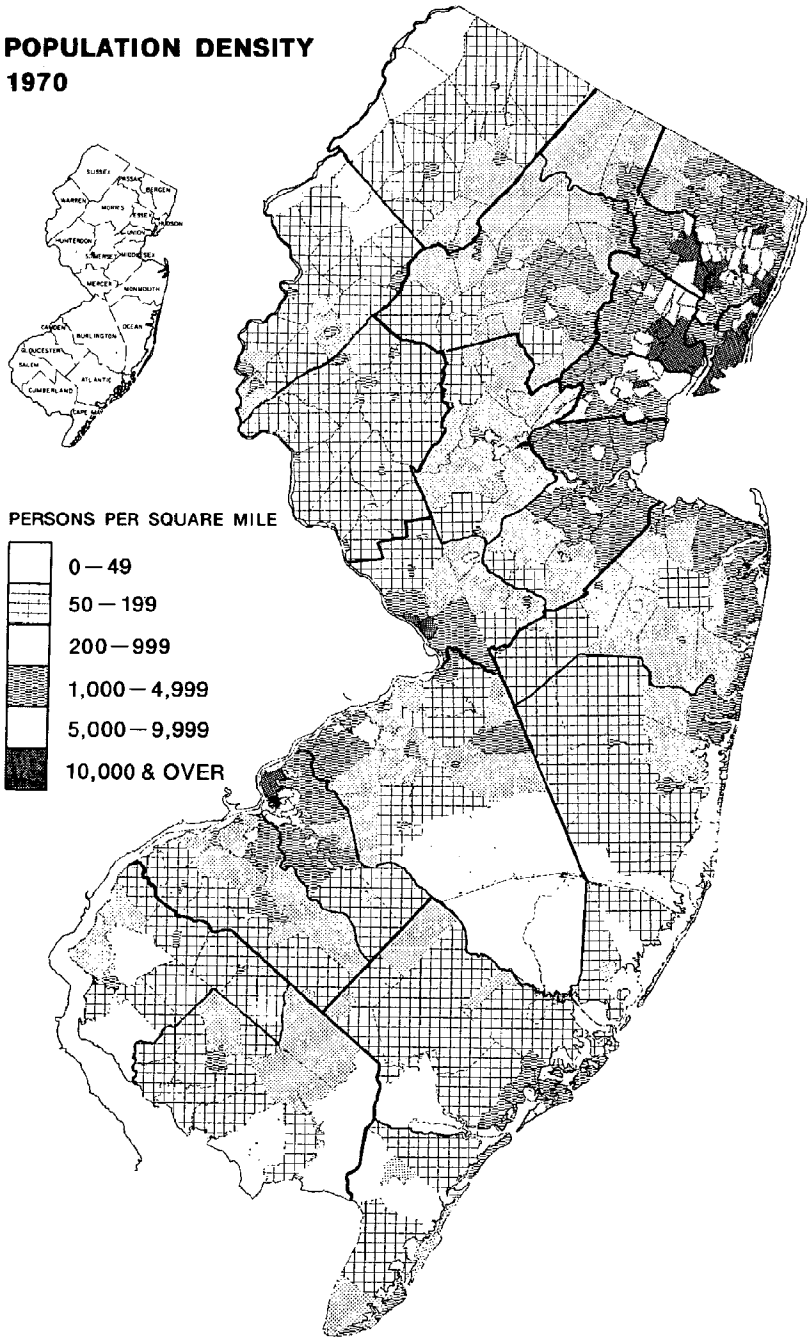


TABLE 1: POPULATION TRENDS BY AGE GROUPS / NEW JERSEY, NORTHEAST. UNITED STATES / 1960 AND 1970

Age Group	1960	1970	Absolute Growth (or decline)	Age Group	1960	1970	Absolute Growth (or decline)	Age Group	1960	1970	Absolute Growth (or decline)
	New Jersey				Northeast				United States		
Under 5	642,197	589,226	- 18.2%	Under 5	4,657,013	3,987,096	- 14.4%	Under 5	20,321,664	17,166,973	- 15.5%
5-19	1,502,955	2,014,888	+ 34.1%	5-19	11,144,610	13,743,559	+ 23.3%	5-19	48,762,554	59,812,230	+ 22.7%
20-24	321,054	509,198	+ 58.6%	20-24	2,467,447	3,628,376	+ 47.1%	20-24	10,803,169	16,371,650	+ 51.5%
25-44	1,716,021	1,746,060	+ 1.8%	25-44	12,031,543	11,566,483	- 3.9%	25-44	46,897,627	47,980,121	+ 2.3%
45-64	1,324,141	1,611,803	+ 21.7%	45-64	9,974,091	10,908,811	+ 9.4%	45-64	36,333,220	41,785,133	+ 15.0%
65 and over	560,414	696,989	+ 24.4%	65 and over	4,406,998	5,210,095	+ 18.2%	65 and over	16,207,237	20,049,592	+ 23.7%

Source: U. S. Bureau of Census – Final and Advance Reports

TABLE 2: POPULATION COMPOSITION BY AGE GROUPS / NEW JERSEY, NORTHEAST, UNITED STATES / 1960 AND 1970

Age Group	New Jersey 1960 6,066,782 People	New Jersey 1970 7,168,164 People	Difference	Age Group	Northeast 1960 44,681,702 People	Northeast 1970 49,044,420 People	Difference	Age Group	United States 1960 179,323,175 People	United States 1970 203,184,772 People	Difference
Under 5	10.6%	8.2%	- 2.4%	Under 5	10.4%	8.1%	- 2.3%	Under 5	11.3%	8.4%	- 2.9%
5-19	24.8%	28.1%	+ 3.3%	5-19	25.0%	28.0%	+ 3.0%	5-19	27.2%	29.4%	+ 2.2%
20-24	5.3%	7.1%	+ 1.8%	20-24	5.5%	7.4%	+ 1.9%	20-24	6.0%	8.1%	+ 2.1%
25-44	28.3%	24.4%	- 3.9%	25-44	26.9%	23.6%	- 3.3%	25-44	26.2%	23.6%	- 2.6%
45-64	21.8%	22.5%	+ 0.7%	45-64	22.3%	22.3%		45-64	20.3%	20.6%	+ 0.3%
65 and over	9.2%	9.7%	+ 0.5%	65 and over	9.9%	10.6%	+ .7%	65 and over	9.0%	9.9%	+ 0.9%
	100.0%	100.0%			100.0%	100.0%			100.0%	100.0%	

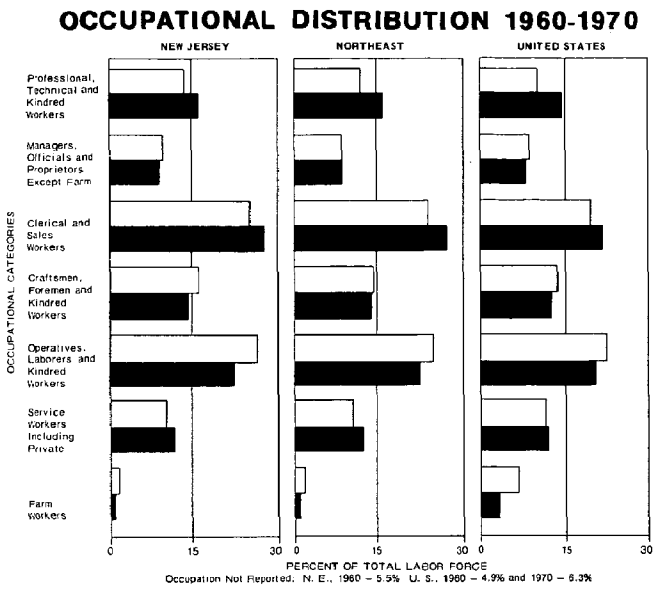
Source: U. S. Bureau of Census

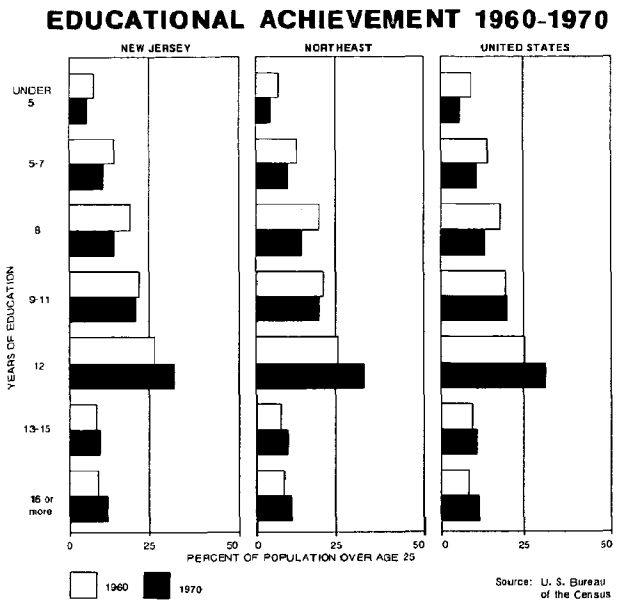
EDUCATIONAL ACHIEVEMENT

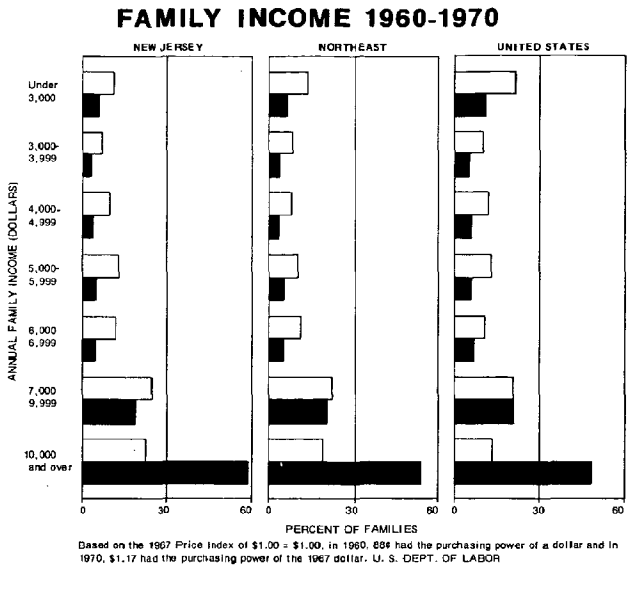
The national and Northeast regional trends toward increased educational attainment are also the trend which emerges in New Jersey. The greatest percent increase is in high school completion followed by four years or more of college. Between 1960 and 1970, the percentage of New Jerseyans 25 years old and over with four years of high school increased 7.2% from 24.6% to 31.8%; this compares favorably with the national and Northeast Region increases of 6.5% and 7.4%, respectively. The percentage increases between the same decade for four years or more of college were 3.4%, 3.0%, 3.1% for New Jersey, the United States, and the Northeast Region, respectively. (See graph entitled "Educational Achievement 1960-1970.")

FAMILY INCOME

New Jersey exhibits the same general trend as the United States and the Northeast Region with regard to family income. The similarity is especially noted in the percent increases between 1960 and 1970 for New Jersey, the Northeast Region, and the United States in the $10,000 and over bracket – 37.6%, 35.2%, and 32.2%, respectively – and in the percent decreases in the under $3,000 to $6,999 brackets – 25.4%, 26.5%, and 21.8%, respectively. However, the increase in median income for the ten year period – $4,621 for New Jersey, $4,263 for the Northeast Region, and $3,930 for the United States – has to be carefully evaluated in terms of the inflationary process. Based upon the 1967 dollar equaling one dollar, the actual purchasing increases in income for the regions are $2,002.99, $1,765.81, and $1,929.17, respectively. (See graph entitled "Family Income 1960-1970.")







Historical Background

PRE-COLONIAL AND COLONIAL PERIODS

The earliest known inhabitants of New Jersey were the Lenni Lenape Indians who generally lived in small settlements along the Delaware River and, thus, were called the "Delawares" by the colonists.

Although the first authenticated visit of a European to New Jersey was made by Giovanni deVerrazano under French authority in 1524, voyages to this region for exploration, trade, and settlement had their real beginnings in 1609 when Henry Hudson under the aegis of the Dutch East India Company, explored the area.

After Hudson's voyage the Dutch and the Swedish were the dominant explorers in New Jersey. However, since they were basically traders and did not make many permanent settlements, their attempts at colonization had very little influence; what influence did exist was in Dutch control.

After 1664 England took control of Dutch settlements along the Delaware and all the possessions which encompass the present State of New Jersey. In 1673, the territory returned to Dutch rule; however, this only lasted until 1674 at which time New Jersey was restored by treaty to England. The restoration of English rule marked the entrance of New Jersey into the "Colonial" period which continued for the next hundred years.

During the struggle for independence from English rule, New Jersey became known as the "Pathway of the American Revolution." Three major battles and some ninety lesser skirmishes were fought in the State. Many of the battle sites and historic structures of the Revolution have been and are being restored as reminders of the struggle for independence.

After the United States had been created, a new era of growth developed with concomitant problems. Despite the attempts of New Jersey port cities to gain and hold on to their trade, for example, ground was lost to the two emerging giants of commerce — New York City and Philadelphia.

THE NINETEENTH CENTURY

The nineteenth century era of industrialization with its emphasis on resource use and considerations of time and distance heralded an awareness of the need for overland transportation as opposed to natural water routes. As a result the early nineteenth century (1800-1830) became the era of the turnpike which aided in the development of internal cities. The emphasis on turnpikes was replaced later by canals and railroads; roads did not regain their importance until the development of the automobile near the turn of the twentieth century. Railroad and canal transportation drew Philadelphia and New York even closer, increasing both New Jersey's role as a travel corridor and that part of New Jersey under their economic influence.

By 1840 New Jersey had grown to a population of 373,000. What would become the major cities of the twentieth century had, by then, assumed well defined roles in the State's economy. Except for the Civil War period (1860-1865), prosperity accelerated constantly. New found wealth of the growing upper and middle classes aided in the development of leisure time pursuits thus giving impetus to the development of New Jersey's coastal resort areas.

In 1880 the State reached and passed the one million population mark. The emergence of the urban state was in process as New Jersey passed into the twentieth century.

THE TWENTIETH CENTURY

The availability of intercity rail passenger service and the emergence of the automobile together with the growth of the affluent middle class "white collar" occupations accentuated the trend toward suburbanization. Although the automobile had made its entrance at the turn of the century, railroads continued to reign supreme until the close of World War II. Automobiles, and the highways they traversed, were feeders rather than competitors of the railroads, and suburban development was confined largely to narrow corridors through which the railroads passed. In the late 1940's and 1950's, people in great numbers broke away from the bondage of rail lines and began to fill the

Inside of General Store — Allaire State Park

countryside between the corridors and areas beyond the reach of rails.

The events of the first fifty years of the century — two World Wars, the Depression, and economic reforms — have tended to obscure the monumental changes of New Jersey's pattern of development and social structure. Nonetheless, the State continued its rapid growth to become a leader in diversified industrial production, research and advanced technology, and agriculture. Since 1900, the expansion of the major metropolitan centers has resulted in a 291% increase of population, from 1,834,000 to 7,168,164 in 1970. Today New Jersey is the most densely populated of the nation's fifty states (954 persons per square mile) and, by virtue of its strategic location, it is the main transport link in the megalopolitan chain extending from Boston to Virginia.

In New Jersey, a State prone to seemingly endless urban expansion, the planned utilization of its land and water resources is of critical importance. The setting aside of a part of the open land resources of the State for conservation and recreation, together with historical preservation, should be a paramount concern at all levels of government, for once overrun by urban development these resources can never be replaced.

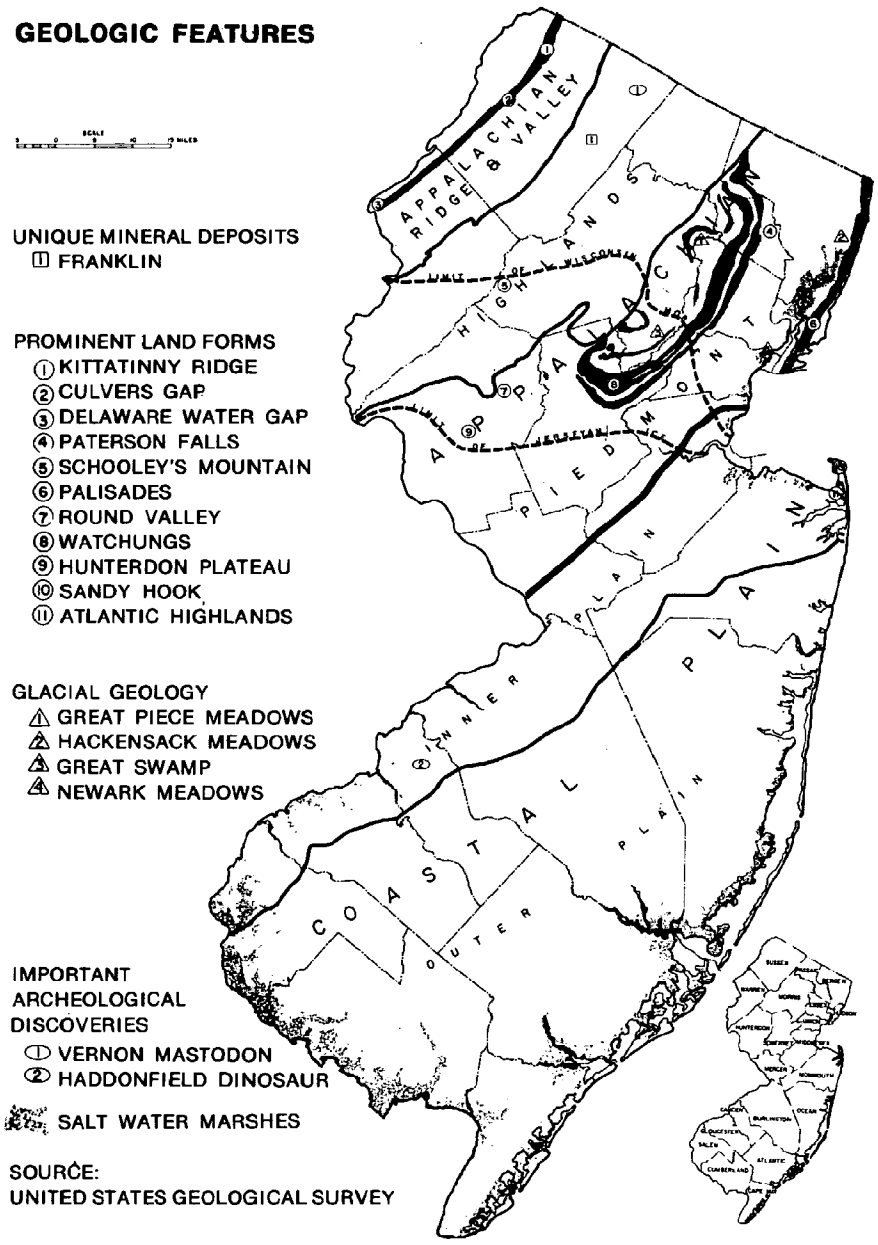
Natural Resources

GEOLOGY

New Jersey can count within its borders over sixty types of geologic formations or rock units which are representative of almost every period of geologic time. These formations have provided the State with its varied scenic and recreational resources ranging from the mountains to the seashore.

As can be seen on the map entitled "Geologic Features," two geologic provinces are evident within the State—the Appalachian and the Coastal Plain—each with distinctive geologic and topographic characteristics. The Appalachian Province covers generally the portion of the State north of a line from Woodbridge to Trenton. Here are to be found New Jersey's fine mountain state parks and forests at High Point, Stokes and Worthington as well as mountain lakes such as Wawayanda, Greenwood and the unique, glacial Sunfish Pond. In this province, too, are wind-formed Culver's Gap, and water-formed Delaware Water Gap. Other features of note in this province are: the majestic Palisades along the Hudson River, Great Piece Meadows, and the Great Swamp, all in the Passaic River Valley; and Cushetunk Mountain, a unique horseshoe-shaped ridge rising above the gently rolling hills of Hunterdon County, now the site of Round Valley Reservoir, a multi-use, state owned water storage and recreation facility.

The Coastal Plain Province makes up the remainder of the State, geologically, and covers the southern portion. It is in this province that the most extensive forested area of New Jersey, "The Pine Lands," is found. Important as a vast aquifer recharge basin, the State has set aside substantial portions of these lands, particularly at Lebanon and Wharton State Forests. Another prominent geological feature of the province is the chain of natural barrier beaches that extends from Delaware Bay to Raritan Bay. These beaches form the backbone of the shore resort industry in New Jersey and include the beaches at Sandy Hook and Island Beach State Parks, as well as those planned at Cape May Point and Higbee Beach. Not to be overlooked are the salt marshes or "wetlands" behind the



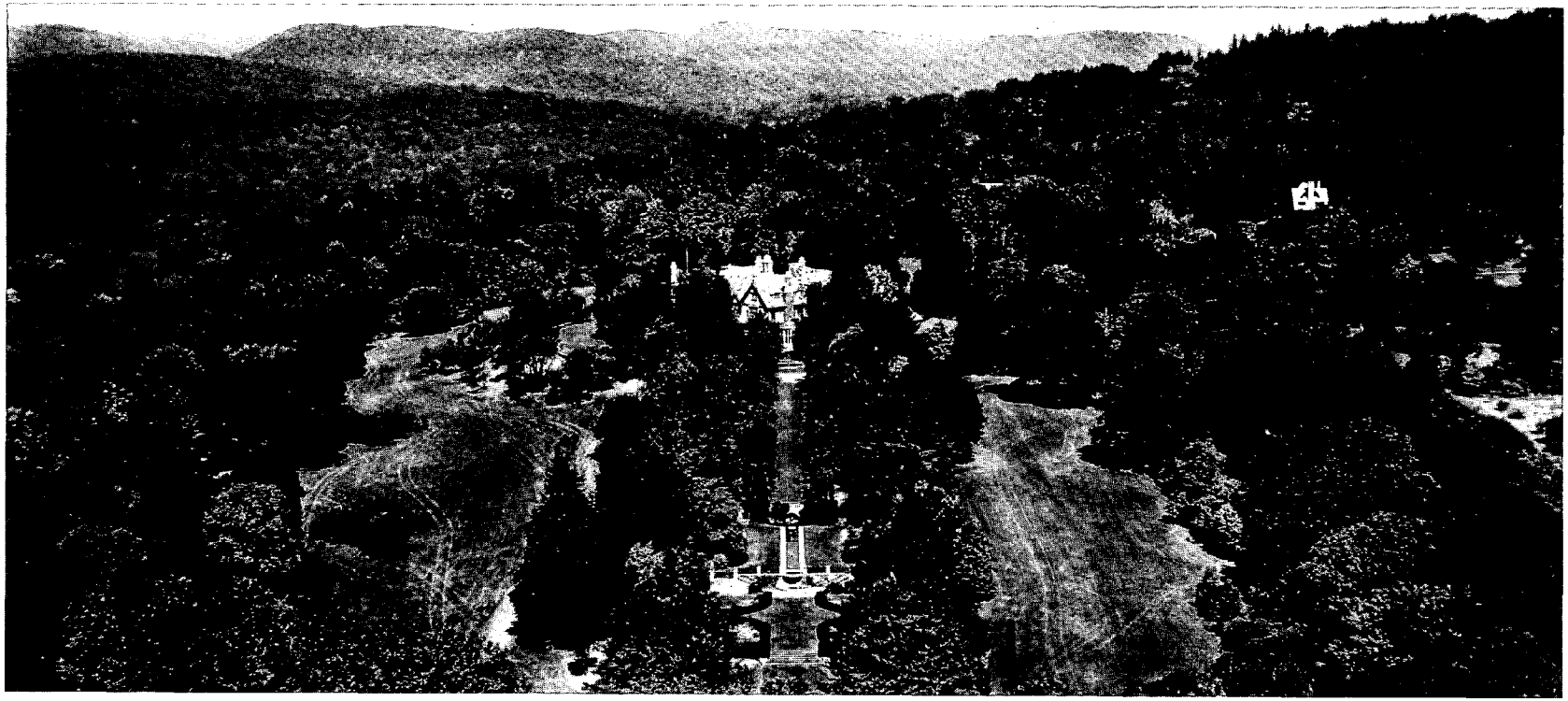
coastal barrier beaches and along the Delaware Bay. Important in the ecological scheme of things, they also provide nearly unlimited opportunities for recreation.

CLIMATE

There is a significant variation in climate within the 166-mile length of New Jersey. Climatologists refer to the climate as "Continental," characterized by cold winters and moderately hot summers with a range in average temperature of 40 degrees or more from the coldest to the warmest month.

New Jersey's position on the Atlantic Coast places it in the midst of the cold air masses moving down from Canada. All northern areas of the State have experienced -15°F temperatures or lower and zero temperatures are not uncommon during winter, even along the southern shore; however, the January average temperature ranges from 28° for the northern sections of the State to 34° for the southern areas. The lowest temperature on record, -34°F, was recorded at River Vale. New Jersey's snowfall is comparatively light, although all localities can expect some fall. The heaviest snowfalls occur in northern New Jersey, the average in Sussex County being about 42 inches.

Skylands



The summer months also may be extreme at times. The tropical air masses that move into the State from the southwest and south tend to be moist and hot, sending hundreds of thousands of people from the sweltering cities to the mountain lake and coastal shore resorts. The July average temperature is above 70°F throughout the State, and all parts of the State have experienced temperatures above 100°F at one time or another.

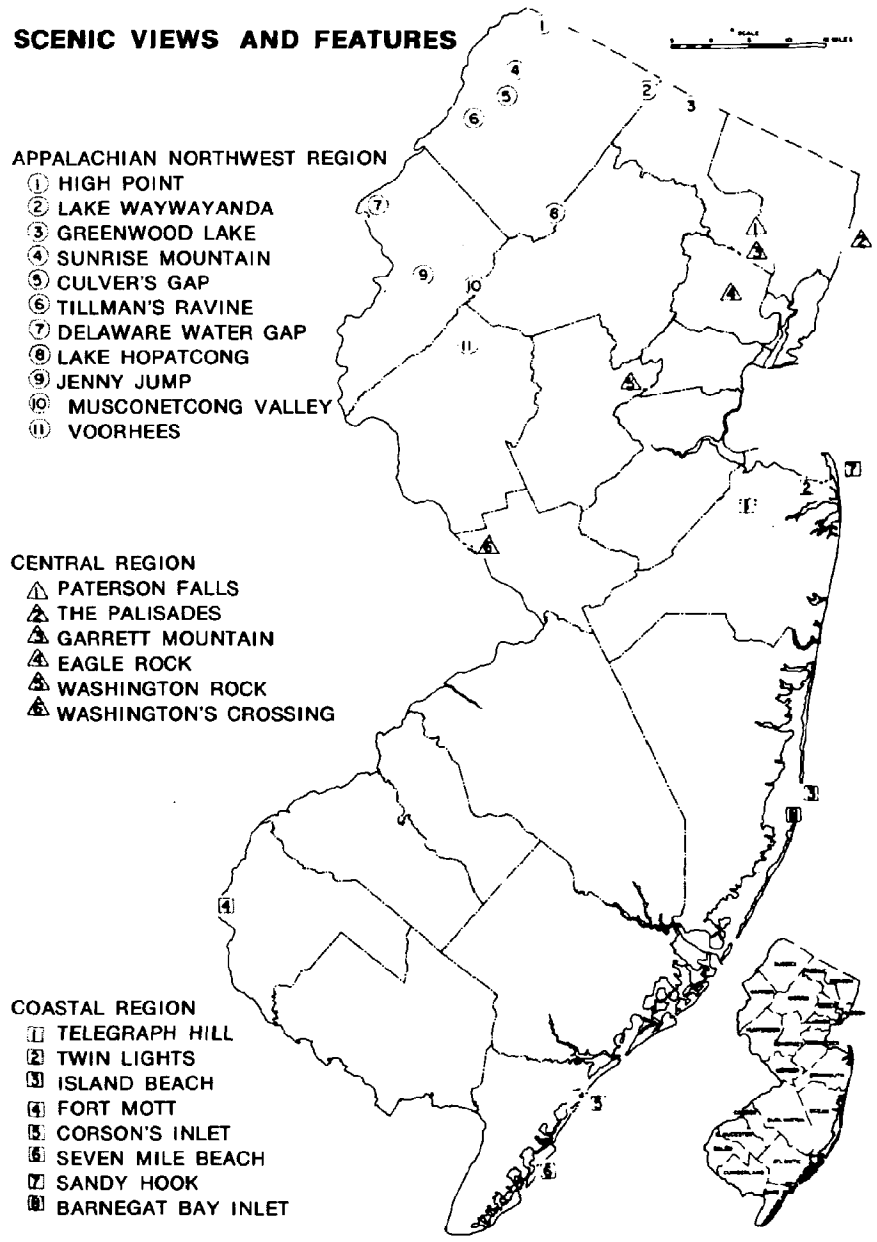
Average annual precipitation is 40 inches or more, making New Jersey one of the wettest areas of the United States. Northern sections of the State receive the greatest fall with annual averages of about 50 inches. The rainfall is relatively reliable and seldom does the total annual fall vary greatly from the average.

TOPOGRAPHIC AND SCENIC FEATURES

New Jersey possesses distinct topographic features providing a variety of fine natural facilities and resources for recreational enjoyment. Though not spectacular in the grand sense, there is much scenic beauty ranging from the rugged Palisades and the subtle beauty of the forested slopes and cultivated lowlands of the Musconetcong Valley to the contemplative beauty of the lakes and streams and tidal waters. The recreationist, in seeking communion with nature, may hike along the Appalachian Trail, perhaps drive westward on Route 24 through the scenic countryside, or paddle a canoe along the delightful Millstone River. As shown on the map entitled "Scenic Views and Features," the State has preserved and developed many of its fine natural features and scenic views. The recreational activities more generally associated with these resources include picnicking, hiking, swimming, camping, fishing, boating or simply scenic enjoyment. Such opportunities are generally provided at areas such as Tillman's Ravine, Sunrise Mountain and Island Beach.

LAND AND WATER RESOURCES

Land is a limited resource that becomes more of a problem annually due to the horizontal spread of development occurring



throughout the nation. The ever increasing exodus of people and industry from the urban centers into the suburban and rural areas is creating an ever mounting pressure on our natural resources. This population spread, with its concomitant needs for more land for housing, commerce, industry and highways, clearly illustrates the delicate balance between land conservation and economic development and the vital necessity for the interrelationship of the two objectives.

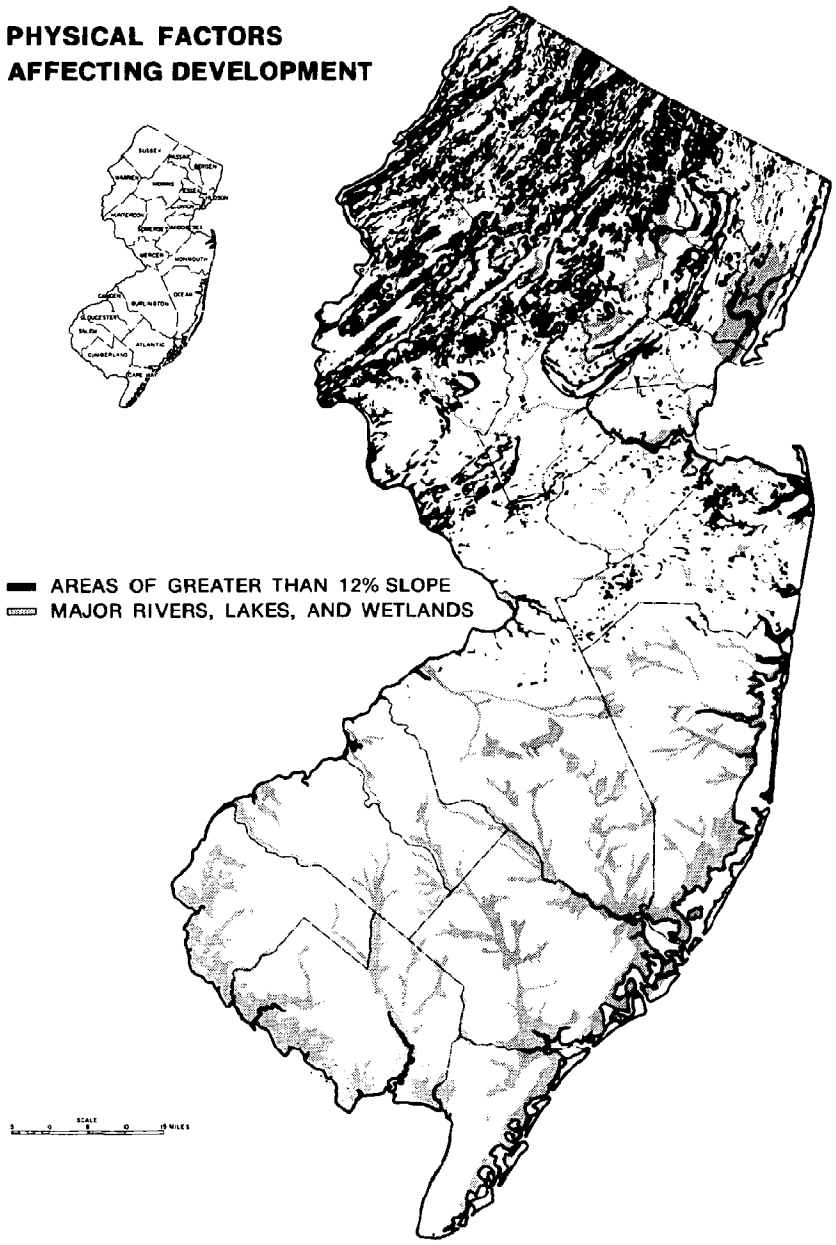
Land — The economic vitality of a state can be measured in part by its rate of land consumption. In New Jersey, residential development is the largest single user, occupying 50% of all developed land. The demand for residential land in some parts of the State already has outpaced the supply.

Laced with more than 2,400 miles of state highways, freeways and limited access roads, 6,600 miles of county roads and seventeen railroads with 1,700 miles of right of way, transportation is the second largest user of land. Providing for the movement of goods and people may soon rank with residential development in land consumption.

Industry is also a large consumer of land. With the continuing trend toward industrial parks and the construction of offices in landscaped surroundings, many new industrial developments are outside of the urbanized counties, thus increasing the competition for the dwindling supply of land.

Fortunately, even with this seemingly prodigious use of land in a State of just under 5 million acres, 65% of the land area is still in forests, agricultural land and wetlands. Excellent opportunities still abound for providing recreational open space, particularly considering that lands not best suited to residential and industrial development or agricultural use are sometimes most suitable for conservation and recreation uses, e.g., flood plains, lands with slopes in excess of 12%, salt marshes and estuarine areas and heavily forested lands. New Jersey has numerous fine areas of these kinds, many of them within easy reach of the larger cities and urban centers. (See map entitled "Physical Factors Affecting Development.")

PHYSICAL FACTORS AFFECTING DEVELOPMENT



Water — New Jersey, bounded on the east by the Hudson River and Atlantic Ocean, on the west by the Delaware River and on the south by Delaware Bay, contains many fine internal water areas as well as coastal water resources. The more than 50,000 acres of reservoirs, lakes and ponds, and over 6,000 miles of rivers and streams are ample evidence of its abundance of water resources.

Major rivers and streams are found throughout the State: the Hackensack and Passaic Rivers in the northeast, the Musconetcong and Paulins Kill in the northwest; the Raritan River in the central region; the Manasquan and Mullica Rivers in the coastal areas; and the Rancocas and Cohansey Rivers in the southwest. Many excellent fishing, boating and canoeing opportunities are to be found on these and other rivers and streams; and much is being done to improve their water quality and environment, as well as their accessibility.

The major lakes and ponds are concentrated in the northwest and north central portions of the State, close to the major population centers. Many of the State's lakes and ponds which total almost 35,000 acres, are used for recreation. Most are privately owned, some are administered by quasi-public organizations and charities, and some are publicly owned, either locally or by the State. Notable among the state owned lakes are Swartswood and Wawayanda.

Reservoirs have only recently been counted among New Jersey's recreation resources. Six are now open for public recreation: state owned Spruce Run and Round Valley, municipally owned Mendham and White Bog, and privately owned Ingersoll Rand and Middlesex Reservoirs. With the great demand for water oriented recreational activities, New Jersey can ill afford the luxury of single purpose reservoirs. Consequently, efforts are now being made to open up more of the municipal reservoirs for recreation close to the urban area. The City of Newark has made significant steps in this direction by opening the Pequannock Watershed for use by inner city residents with state aid providing transportation.

Of the many outdoor recreational environments — seacoasts, mountains, deserts and woodlands — the "Shore" has an unusually strong appeal for New Jerseyans and out-of-state visitors. An estimated 30 to 50 million people annually visit the "Jersey Shore" with its 127 miles of beautiful ocean beaches between Sandy Hook and Cape May. Most of this magnificent ocean front is either privately or municipally owned; exceptions are the two state beaches at Sandy Hook and Island Beach State Parks, and the two federal National Wildlife Refuges at Brigantine and Barnegat.

Forests — Although New Jersey is not often thought of in relation to its forests, 1,900,000 acres or 40% of the State is covered with woodlands, and 15% of this forested land is held by the State. The more significant state holdings are: (1) the enormous Wharton State Forest with more than 99,600 acres, (2) Lebanon State Forest with almost 27,000 acres, and (3) Stokes State Forest with nearly 15,000 acres (see map entitled "Forest Resources and Plant Life").

The trees of the State's forests fall into two major categories: the northern hardwoods and the southern pines. Among the hardwoods are found tulip poplar, the many varieties of oak and maple, birch, ash and hickory. The pines include the Virginia pine, shortleaf pine and pitch pine.

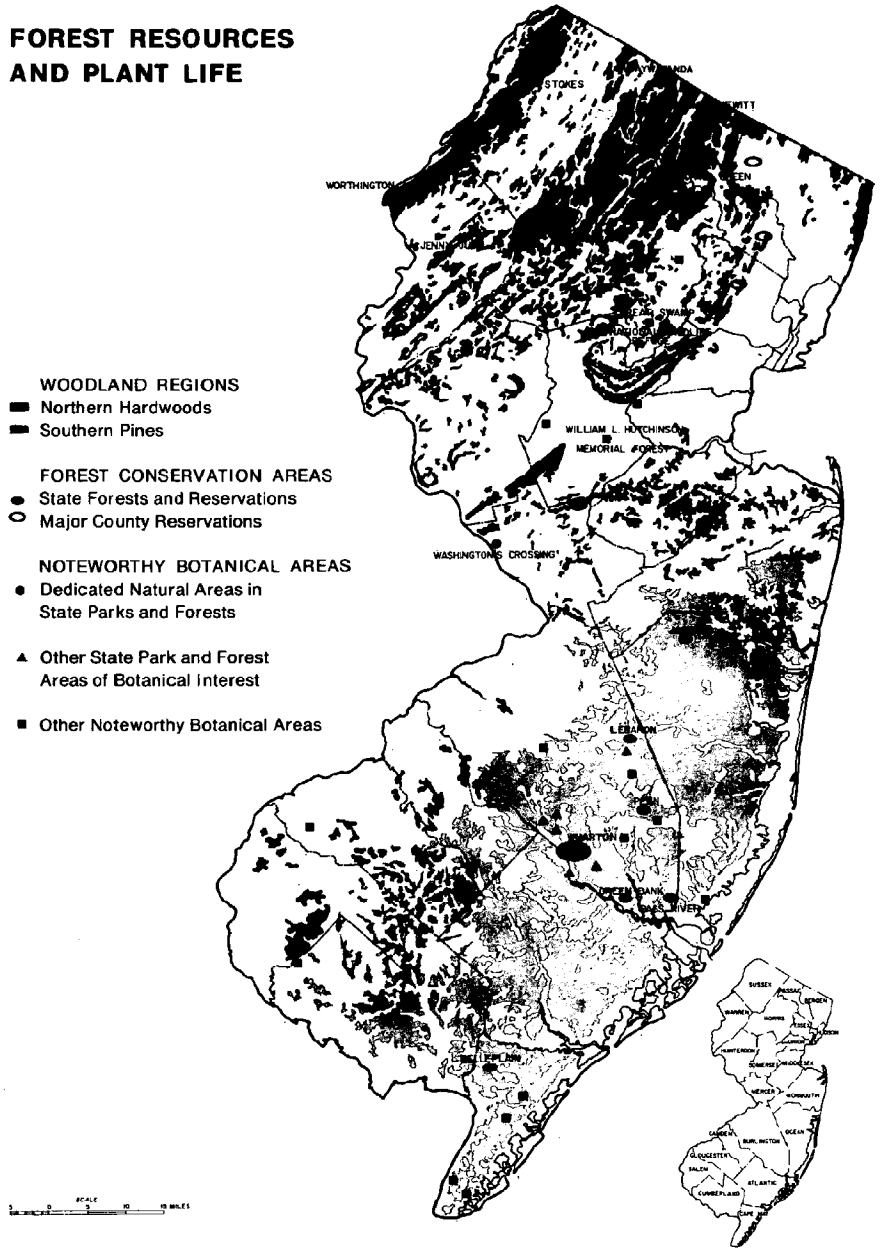
The more heavily forested areas are in the northwest regions and south of the Raritan River in the coastal area; the more urbanized central area contains the least forested land. In terms of recreation potential, forest areas are generally well distributed and are within a one and one-half hours' drive of the major population centers of the State.

Providing the setting for camping, hiking, hunting, fishing, and canoeing, there is little doubt as to the recreational value of our forests, and with the increasing popularity of these activities, the need for more forest areas to be preserved is evident. New Jersey has recognized this need and through its pioneering Green Acres Land Acquisition Program is continuing to add significantly to its protected forested lands.

Plant Life — As a result of its geographic location in an area between the northern and southern environmental extremes, New Jersey has a wide range of plant life. There are many interesting botanical areas throughout the State, containing specimens varying from the more common plant associations to those that are not found anywhere else in the nation.

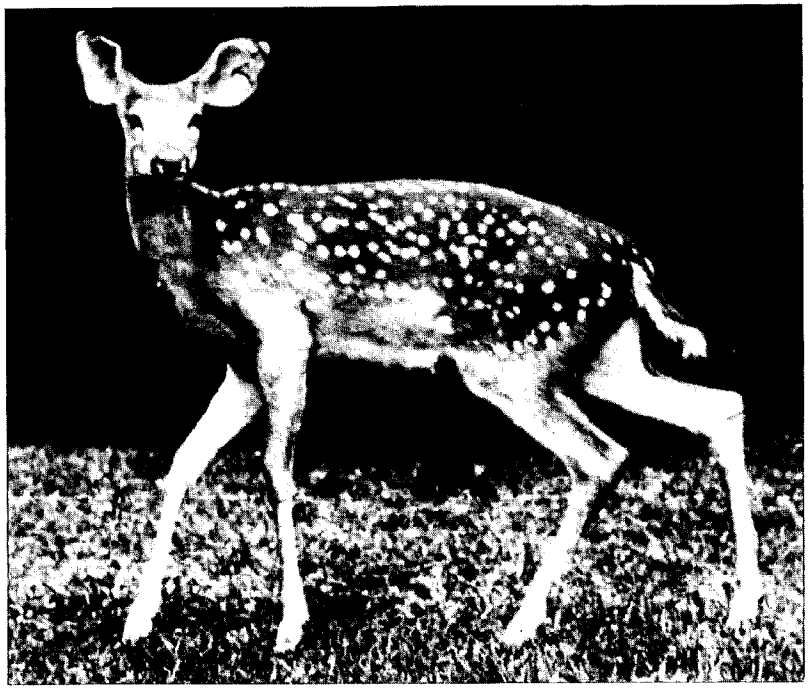
In the northern section of the State in moist, cool ravines, the hardy rhododendron flourishes. The central area contains a mixture of plant life as a result of the seeds of northern plants being carried down to their southern limits by flooding rivers and streams; here it is common to find sand dunes wooded with northern varieties amidst scenic plant life indigenous to the

FOREST RESOURCES AND PLANT LIFE



southern area. In the Pine Lands are found distinctive plant life forms such as pyxie moss, pine barrens gentian and heathers. The southern area of the State abounds with orchids, mosses, grasses and wildflowers.

Many of the botanical areas are protected by governmental agencies and private organizations. Nature trails have been developed in numerous areas and provide a myriad of nature recreation and educational experiences in all portions of the State.



Wildlife and Fisheries—New Jersey has more than 460,000 acreas of fish and wildlife lands, publicly and privately owned. The majority are located in the northwestern and southwestern portions of the State (see map entitled "Wildlife Resources"). Both fishing and hunting are permitted on state fish and game lands and in all state forests; hunting is permitted at only four state parks (Ringwood, Rancocas, Swartswood, and Wawayanda).

There are three broad categories of wildlife habitats in New Jersey: woodlands (1,913,000 acres), farm lands (990,000 acres), and wetlands (400,000 acres). Types of wildlife range from cottontail rabbit to deer and include fox, squirrel, raccoon, muskrat, beaver, grouse, pheasant, quail and duck.

The rugged northwest section of the State is comprised mainly of farm land, and is a favorite area for small game and deer. Major hunting areas are the Worthington Tract (5,800 acres), Stokes State Forest (14,800 acres), and Hamburg Mountain (3,600 acres). Southern New Jersey's pine forest section also offers small game and deer hunting, and there are numerous state and private hunting facilities here—the 99,600 acre Wharton State Forest being the largest public area open to hunters in New Jersey. Also, southern New Jersey's wetlands, located along the famous Atlantic Flyway, are used by over 50 varieties of waterfowl, providing sport for both naturalists and hunters. One of the most famous waterfowl, the Atlantic brant, which breeds in northern Canada and on the coast of Greenland, winters along the Atlantic coast, chiefly in the coastal strip extending from Little Egg Harbor to Cape May Point.

Many agencies are active in providing for wildlife in preserves, refuges and sanctuaries. The State, through the Divisions of Fish, Game and Shellfisheries and Parks and Forestry, has over 350,000 acres which are preserved as natural habitats for wildlife management and are open for nature study as well as hunting.

The Federal Government owns wildlife refuges at four locations in New Jersey. These include Brigantine National Wildlife Refuge (19,645 acres) in Atlantic County, Great Swamp National Wildlife Refuge (5,500 acres) in Morris County, Barnegat National Wildlife Refuge (652 acres) in Ocean County and Killcohook National Wildlife Refuge (635 acres) in Salem County. Refuges are closed to hunting with the exception of Killcohook and a portion of Brigantine.

Privately sponsored sanctuaries in New Jersey are provided by the National and New Jersey Audubon Societies. They presently maintain seven preserves with a total of about 285 acres.

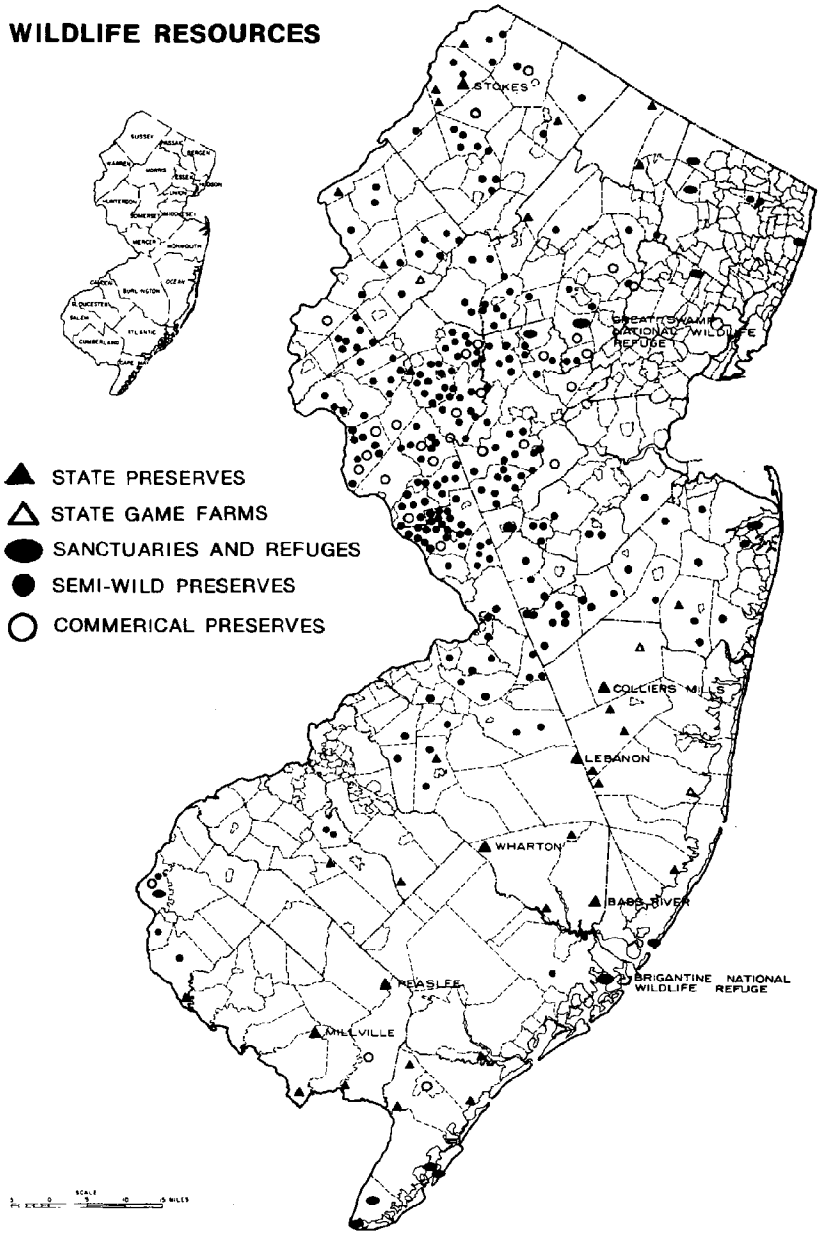
New Jersey is fortunate in its fishery resources. In addition to the coastline with its 390,000 acres of estuarine waters, there are 6,400 miles of rivers and streams, and 50,000 acres of lakes, ponds and reservoirs. These fresh and salt waters yield an endless variety of fish, including striped bass, bluefish, pickerel, walleyed pike, perch and trout, and a full spectrum of shellfish.

Saltwater fishing, for which New Jersey is famous, is enjoyed all year round and runs the gamut from deep sea and bay to surf and jetty fishing.

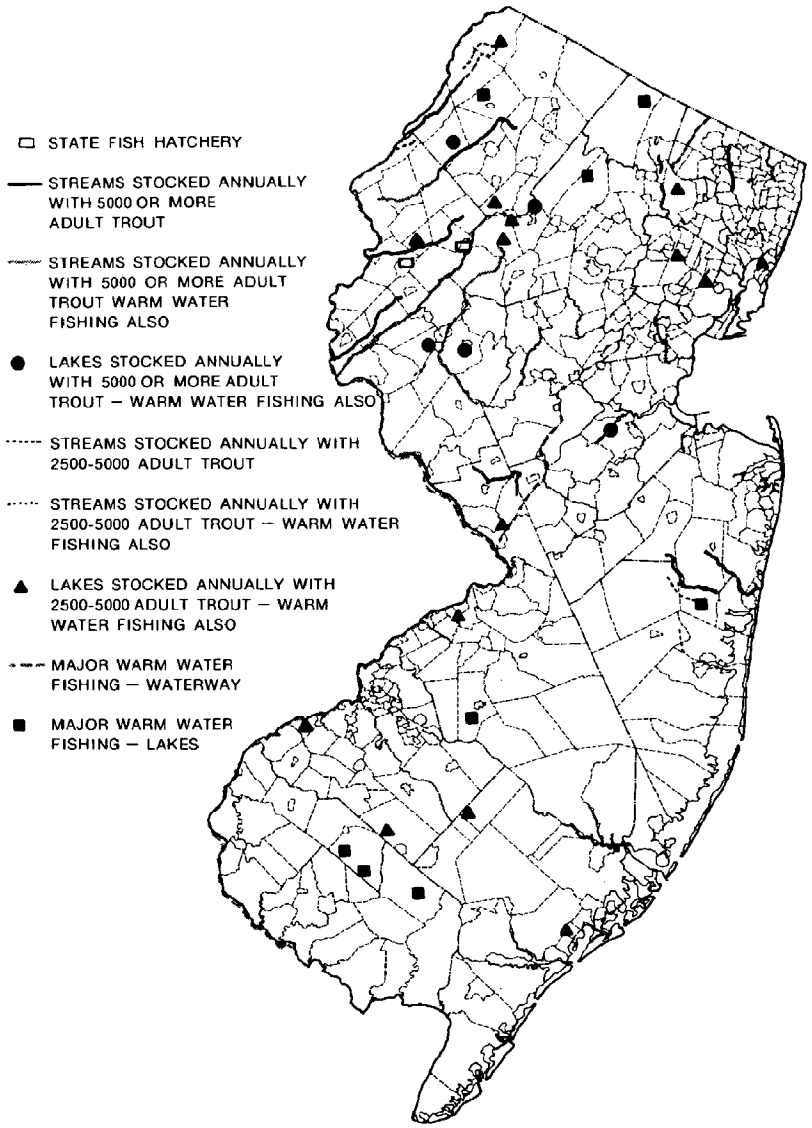
The more than 100 rivers and streams (including 1,400 miles of stocked trout streams) and 900 plus lakes and ponds offer the freshwater fishing enthusiast endless opportunities (see map entitled "Fishery Resources").

Winter provides the setting for the increasingly popular sport of ice fishing, usually beginning about the first of January and running to about the middle of February.

WILDLIFE RESOURCES



FISHERY RESOURCES



Cultural and Historical Resources

When the subject of cultural attractions is discussed, it is usually in terms of New York City or Philadelphia; unfortunately, we seldom consider the opportunities closer by. While unable to match the sheer quantity of its neighbors, New Jersey has many excellent facilities to further interests in music, history, theatre, and the arts: the Newark Museum, which ranks with the finest in the country; Symphony Hall in Newark, home of the New Jersey Symphony Orchestra; the New Jersey Historical Society Library with its more than 30,000 volumes on the State's history; the New Jersey Museum in Trenton; and the Garden State Performing Arts Center at Telegraph Hill in Monmouth County with its range of entertainment from the best of Broadway, to music, modern dance and the ballet. New Jersey offers a full calendar of year-round entertainment including summer theatre, beauty pageants, state fairs, antique shows, ice capades, automobile and boat racing, harness and thoroughbred racing.

History was made in New Jersey and, fortunately, many of the significant sites and structures associated with these historic events have been preserved through the efforts of interested individuals and various historical societies and state and federal action; the past is very much a part of the present. Left behind during our State's development are remnants of our cultural, social, agricultural, and early industrial past. New Jersey has a rich heritage established on native, Dutch, Swedish, and English backgrounds. It played a vital role in the American struggle for independence and developed through the nineteenth century by accepting immigrants of many nationalities. New Jersey began by being an agricultural state, expanded on invention and industry as a part of a young republic, and became by the twentieth century a highly urbanized state. The rapid and seemingly unceasing urbanization of New Jersey bears directly on the need for historic preservation.

From Old Tappan to Camden, New Jersey is dotted with places that echo the cry of freedom and make it "The Pathway

of the Revolution." At McKonkey Ferry, a bitter Christmas Eve saw General Washington cross the Delaware River to lead his raid on the Hessians at Trenton. But history is not confined to the events of our Colonial past, witness the historic meeting at Hollybush in Glassboro between President Lyndon Johnson and Soviet Premier Alexei Kosygin.

There are a number of state owned historical sites administered by the Department of Environmental Protection which, through its Historic Sites Section, has set out to make sure that evidence of this history—from buildings to battlefields—is preserved for present and future generations. Among these are a President's birthplace, two houses used by General Washington as headquarters during the Revolutionary War, a poet's house, a monument commemorating a battle of the Revolution, and the ruins of early Colonial iron furnaces. The New Jersey Register of Historic Places together with the National Register of Historic Places, by providing protection against encroachment by any governmental projects, are important adjuncts to the State's preservation program. Sixty-two of the sixty-seven State Register components have been placed on the National Register.

All of these cultural and historic resources must be viewed in light of the upcoming Bicentennial of the nation's founding. New Jersey should plan for this celebration by putting its cultural and historic sites in first-rate condition. Completion of the New Jersey Register of Historic Places, together with provisions for interpretative facilities, will aid in the development of the State's participation in the 1976 observance. The nation's two-hundredth anniversary offers a definite opportunity for New Jersey to show millions of visitors, as well as its own citizens, the depth and breadth of its cultural and historic heritage.

Transportation

New Jersey's expressways are key links in the highway system of the Northeast; the considerable interstate movement through New Jersey, attributable in part to her location in the geographical center of the megalopolis stretching from Boston to Washington, has resulted in New Jersey's designation as the "Corridor State" (see map entitled "The Region"). The north-south orientations of the Turnpike and Interstate 295 attest to New Jersey's role as a major East Coast travel corridor.

The influence of the great urban centers of New York City and Philadelphia has caused the interstate travel between New Jersey and Pennsylvania to be ranked highest in the nation while the movement between New Jersey and New York State is second highest. The largest single movement—commuter travel between New Jersey and Manhattan—amounts to 480,000 person-trips daily of which slightly less than 50% use some form of public transit (rail or bus). In southern New Jersey, the Lindenwold High Speed Line has been constructed to ease commutation between central Philadelphia and the Camden area; the recent decision to use buses as feeders to the rail system should further increase usage of the line.

Recreation travel to New Jersey's coastal resorts is expedited by two expressways and a network of state, county, and local highways. In general, the northern sector of the Garden State Parkway serves as a link between the New York City area and the shore region, while its southern section serves as a connector between New Jersey's ocean resorts. In addition to the Garden State Parkway, the only other existing shore access expressway is the Atlantic City Expressway which puts Philadelphia a forty-five minute drive from the boardwalk in Atlantic City and from county and local roads leading to other Jersey ocean resorts. At present, the county road system provides the most significant access from Trenton and central New Jersey to the coastal resort areas. In contrast, the Philadelphia-Camden and Newark areas have shore access ranging from the aforementioned expressways to federal, state, county and local highways; however, these routes are not free of time consuming lights and local traffic congestion, e.g., Route 30 which serves as a major cross-state artery between the Camden area and Atlantic City, and Route 9 which is an important link between Newark and the southern resort areas are both laced with traffic lights, not to mention traffic jams, during the peak summer months.

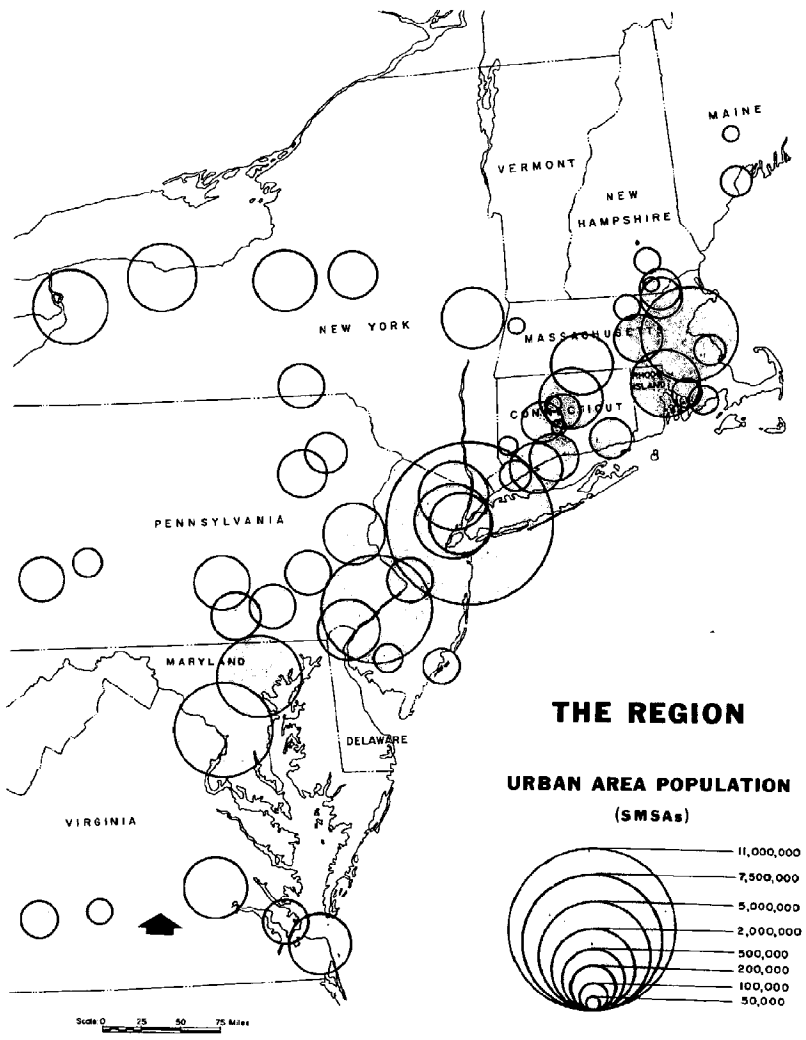
Highway access from the major urban centers to other sections of the State with significant natural recreation resources—the mountainous Northwest Region and the Delaware Bay Region—is limited, inhibiting optimum use. At present, recreationists seeking the pleasures available in the Northwest must use, with the exception of Interstate 78, predominantly single lane state, county and municipal roads. The same is also true for the Delaware Bay Region.

Recreation oriented mass transit takes the form of bus transportation which not only provides access to recreation areas within the urban areas but also ties the urban areas of New York, Pennsylvania and New Jersey with the coastal resort areas. While the majority of railroad service is of the commuter home-to-work type, passenger railroad service from Newark and Elizabeth southward to Point Pleasant Beach is provided, as is service from the Camden area to Atlantic City, Ocean City and Cape May.

Flying and boating are modes of transportation as well as popular recreation activities. New Jersey's 84 public use airports are distributed throughout the State, providing convenient access to nearly all its major recreation attractions including those in the Northwest and Delaware Bay regions. The Atlantic Intracoastal Waterway, which begins in Florida and extends along the Atlantic coastline, terminates at the Manasquan Inlet in Monmouth County. Annually, thousands of boaters use this route to reach the State's shore resorts.

Planned transportation improvements will measurably increase automobile access to many of the areas of the State now lacking adequate access. Interstates 80 and 287 should ease the accessibility problem in the Northwest while Interstate 195 should facilitiate access from the Trenton area to the Atlantic coast resorts. The Governor Driscoll Expressway will provide a transportation corridor from southern and central New Jersey connecting Dover Township in Ocean County with the Turnpike in the vicinity of South Brunswick and should reduce the traffic load on the existing local roads.

New Jersey's major highway system is shown in relationship to major public recreation areas on Appendix Q map entitled, "Major Public Open Space and Recreation Areas in New Jersey."



New Jersey Study Regions

To facilitate recreation demand and supply analysis and to obtain a more meaningful reflection of the recreation needs throughout New Jersey, the State was divided into eight study regions delineated by the state planning agency for other state planning purposes. These regions, formed on the basis of either socio-economic and/or physiographic similarities, adhere to official county lines except in three instances where they follow municipal lines (see map entitled "New Jersey Recreation Study Regions").

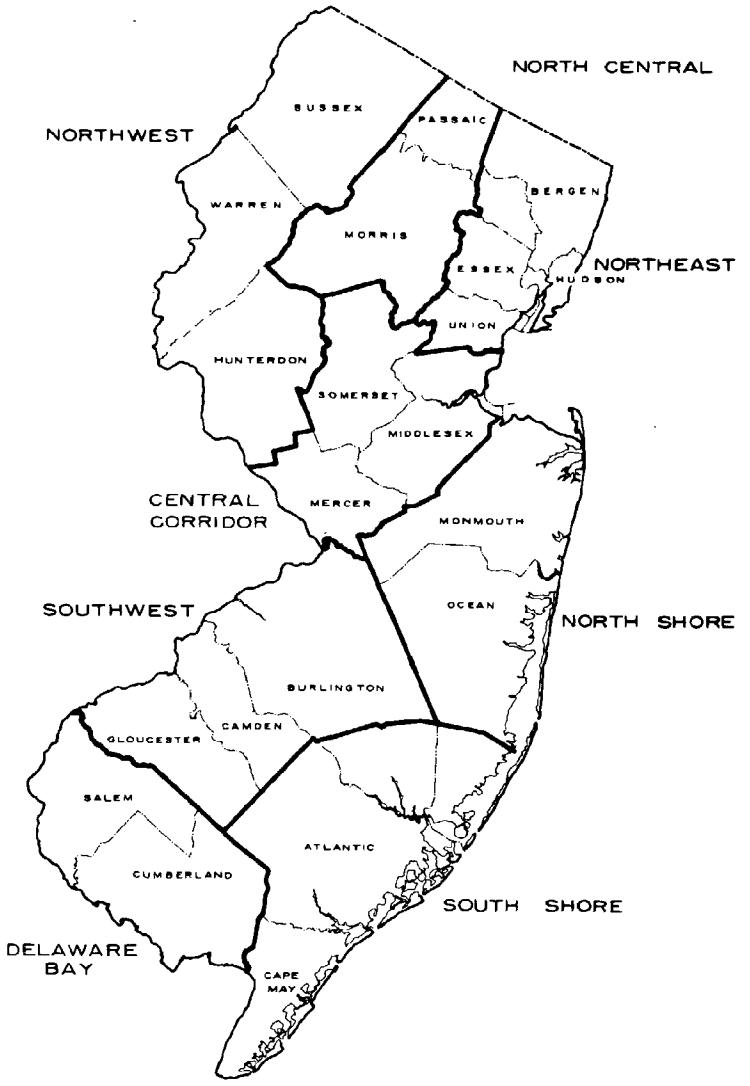
THE NORTHWEST REGION (Hunterdon, Sussex and Warren Counties)

The Northwest Region is physically dominated by the Appalachian Ridge and Valley. It is basically a rural farm area with the second lowest population of the various regions. The State operates a number of recreation areas in the region among which are High Point State Park, Stokes State Forest, and Spruce Run and Round Valley reservoirs. This mountainous region with its many scenic vistas and abundant lakes attracts large numbers of summer visitors. The future opening of the Delaware Water Gap National Recreation Area is expected to spur development and economic growth in this region.

THE NORTH CENTRAL REGION (Morris County and the northern section of Passaic County)

The North Central Region is characterized by rough terrain and sparce settlement in its northern sector. The southern portion, however, is experiencing rapid population growth. Between 1960 and 1970, Morris County's population increased by 46.6%, the third highest rate in the State. Many of north Jersey's public watersheds and reservoirs are located in this region. There are a sizable number of state operated recreation areas in the region including Ringwood State Park and Norvin Green State Forest.

NEW JERSEY RECREATION STUDY REGIONS



Barnegat Light

THE NORTHEAST REGION (Bergen, Essex, Hudson and Union Counties and southern section of Passaic County)

The Northeast Region is the most densely populated and most urbanized region in New Jersey. At present nearly 50% of the State's population resides in the Northeast Region. Because of its crowded condition, this region experienced the lowest relative gain in population in the State between 1960 and 1970. In fact, one county (Hudson) lost population during this period. Due to the scarcity of undeveloped land, there are few state recreation areas in this region.

THE CENTRAL CORRIDOR REGION (Mercer, Middlesex and Somerset Counties)

The Central Corridor Region serves mainly as a connecting link between New York City and Philadelphia. The New Jersey Turnpike, the Garden State Parkway, U.S. Routes 1, 9, 22 and 130, and Interstate Routes 287 and 95 all pass through this region. Because of convenient transportation and proximity to one of the major urban centers, many areas in this region are experiencing suburban growth. During the period between 1960 and 1970, the population growth rates for all three of the counties comprising the region exceeded the state growth rate. There are relatively few state recreation areas in this region.

THE NORTH SHORE REGION (Monmouth County and northern section of Ocean County)

The North Shore Region has the longest developed shoreline for recreation in New Jersey; the region thrives as a recreational resort. This region between 1960 and 1970 experienced the highest relative population gain of any region in the State as a result of the suburban growth expanding outward from the New York metropolitan area. The only state managed recreation areas which front the ocean, Sandy Hook State Park, Island Beach State Park, and Barnegat Lighthouse State Park, are located in this region.

THE SOUTHWEST REGION (Camden and Gloucester Counties and western section of Burlington County)

The Southwest Region is experiencing rapid suburbanization related to an outward growth from Philadelphia. Most of the region's population is concentrated along the Delaware River. Approximately half of the region's total land area is included in the vast undeveloped area known as the Pine Barrens. In an effort to preserve this semi-wilderness area, the State has acquired extensive tracts of land in the eastern portion of this region, including parts of Wharton and Lebanon State forests.

THE SOUTH SHORE REGION (Atlantic and Cape May Counties, eastern section of Burlington County and southern section of Ocean County)

The South Shore Region is physically composed of a coastal terrain and marsh area and an extensive pine barren region inland. The economy of the region is tourist oriented centered along the coastline, with very little industrial activity. The population is experiencing only a moderate growth. State holdings in the region include extensive marshland areas and vast tracts of land in the Pine Barrens.

THE DELAWARE BAY REGION (Cumberland and Salem Counties)

The Delaware Bay Region, which has the lowest population in New Jersey, is experiencing only moderate increases. The entire southern boundary of the region, fronting on the Delaware Bay, consists of marshes and wetlands which play an important role in the region's fishing industry and which act as natural barriers to waterfront development. The State has acquired extensive tracts of wetlands along the coastal zone of this region.

OUTDOOR RECREATION DEMAND II

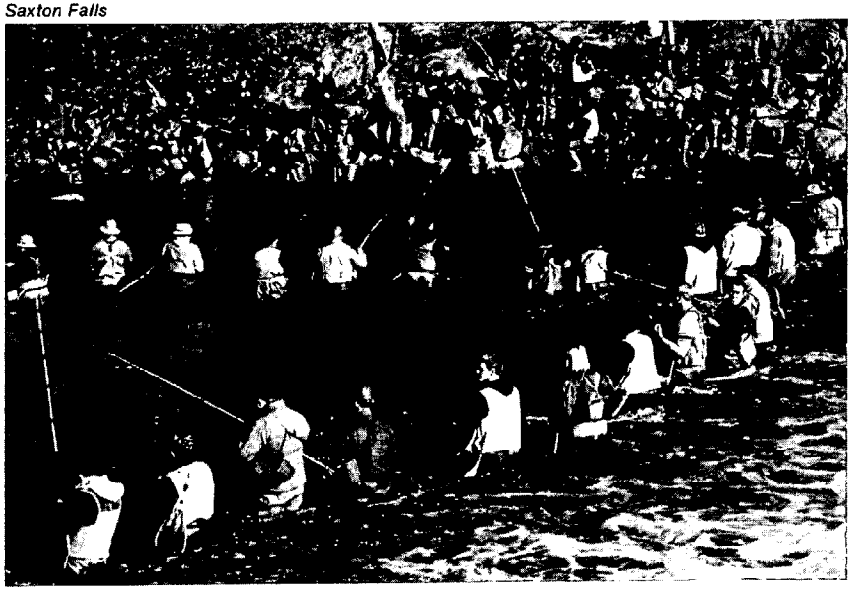
Outdoor Recreation Demand Determination

Population growth, rising family incomes and increasing leisure time are among the factors contributing to the rapidly increasing demand for outdoor recreation in New Jersey. This demand generated by the residents of New Jersey and neighboring states in many instances has surpassed the capacity of the existing supply of outdoor recreation facilities for many activities and has resulted in the reduction of the quality of the individual experience. Long waiting lines at ski slopes, golf courses and tennis centers, and overcrowded beaches and swimming pools attest to the growing problem of providing adequate outdoor recreation facilities.

In order to efficiently plan for the provision of outdoor recreation facilities to meet future needs, realistic measurements of demand must be made. The demand data should be expressed in quantitative terms so as to permit the ranking of activities according to popularity and the comparison of demand for activities with determinable facility capacities to supply and the recognition of deficits or surpluses in facility supply. Such factors as population growth and changing socio-economic characteristics which influence the demand for outdoor recreation must be identified and incorporated in the determination of demand.

The demand in New Jersey for twenty-three outdoor recreation activities has been determined by using the methodology discussed briefly in the following section. Twelve of these activities with determinable facility capacities — swimming, boating, fishing, camping, hiking, bicycling, horseback riding, hunting, picnicking, ice skating, snow skiing and playing outdoor games — will be analyzed further in succeeding chapters in relation to supply. The available supply data for the other activities such as driving for pleasure and sightseeing were either nonexistent or not readily convertible to quantitative terms and therefore precluded detailed analysis of these activities.

Saxton Falls



BASIC CONCEPTS OF OUTDOOR RECREATION DEMAND DERIVATION

In 1960-61, the Outdoor Recreation Resources Review Commission (ORRRC) conducted a nationwide survey of outdoor recreation in order to determine specific recreation demand preferences and the interrelationships of various socio-economic factors upon such information. In computing the participation rates for each activity, the effects of socio-economic factors such as age, income, place of residence, and occupation were considered.

The results of the ORRRC study were the primary source of information used in analyzing New Jersey's socio-economic factors relative to outdoor recreation demand. A workable methodology was developed applying the ORRRC activity rates to New Jersey's population data. Through a series of procedures the total number of persons who wish to recreate for each activity on a typical weekend day in the peak season for the years 1970, 1985 and 2000 in New Jersey was established.

The methodology employed to convert ORRRC activity rates to peak season weekend day demand incorporated a number of innovative techniques and concepts. The following are the more important innovations introduced:

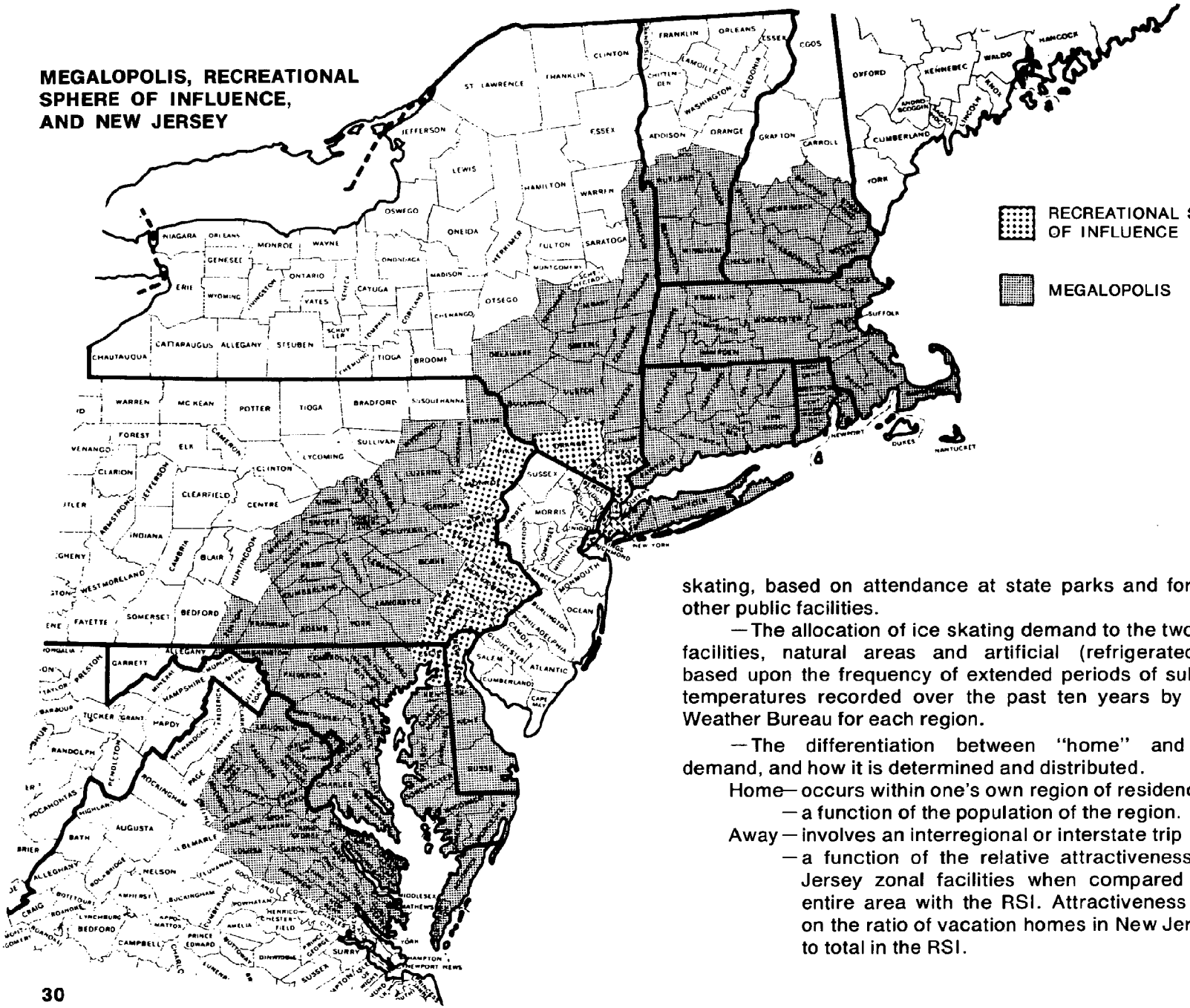
—The concept of New Jersey with its 21 counties and 567 communities as comprised of 8 recreation study regions formed on the basis of socio-economic and/or physiographic similarities.

—The related concept of New Jersey and its Recreational Sphere of Influence (RSI), consisting of 19 counties in the neighboring states of New York, Pennsylvania, Delaware and Maryland divided into eleven zones with defined ranges of recreation travel extending into New Jersey. (Refer to map entitled "Megalopolis, Recreational Sphere of Influence, and New Jersey.")

—The determination of the relationships of activity days to recreation days; on the average, two activity days comprise one recreation day (one person participating in one activity for an entire day).

—The relationship between peak season weekend day and total peak season demand: 2%, with the exception of ice

MEGALOPOLIS, RECREATIONAL SPHERE OF INFLUENCE, AND NEW JERSEY



skating, based on attendance at state parks and forests and other public facilities.

—The allocation of ice skating demand to the two types of facilities, natural areas and artificial (refrigerated) areas based upon the frequency of extended periods of subfreezing temperatures recorded over the past ten years by the U.S. Weather Bureau for each region.

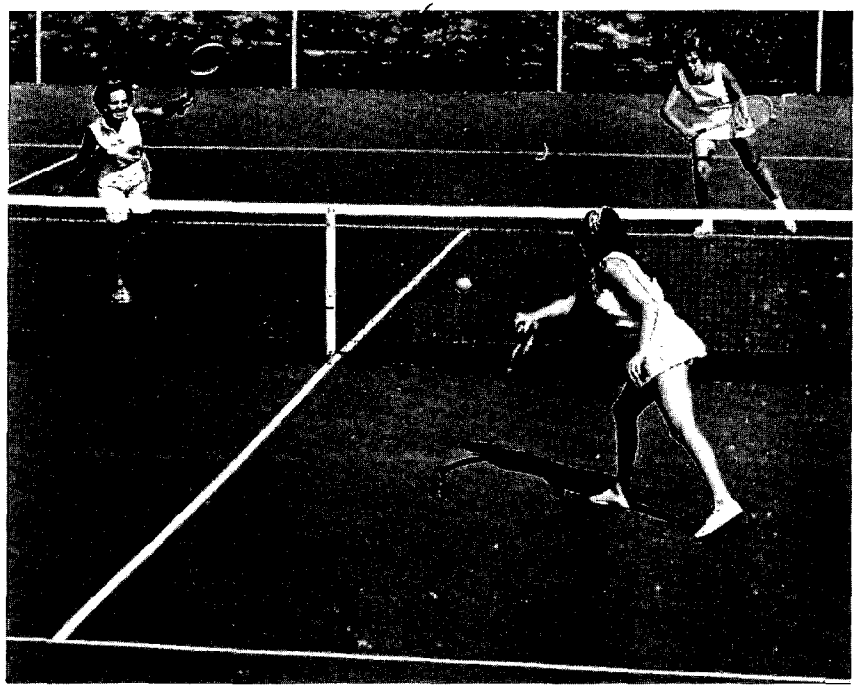
—The differentiation between "home" and "away" demand, and how it is determined and distributed.

Home—occurs within one's own region of residence
—a function of the population of the region.

Away—involves an interregional or interstate trip
—a function of the relative attractiveness of New Jersey zonal facilities when compared with the entire area with the RSI. Attractiveness is based on the ratio of vacation homes in New Jersey zone to total in the RSI.

—a function of the relative attractiveness of the region's facilities when compared with other New Jersey regions' attractiveness is based on the ratio of attendance at public facilities in the region to total attendance throughout the State.

The derivation of demand in terms of an average weekend day rather than seasonal totals permits the relating of demand data to the development of specific recreation facilities which are built on the basis of accommodating a maximum number of persons daily. By indicating the relative demand figures of each recreation activity for each of New Jersey's eight study regions, the methodology gives an overall statewide basis for planning outdoor recreation facilities. This approach allows for the development of recreation areas related to a statewide framework and a rationally determined set of guldelines. (For a complete discussion of the methodology used in the demand derivation refer to Appendix B.)



POPULATION GROWTH

The population of the United States has steadily increased from less than 4 million people in 1790 to over 203 million in 1970. Between 1960 and 1970 the nation's population grew by 13.3% over the previous decade. During the same period, New Jersey's growth rate was 18.2%, 5% over the national rate, and the population of New Jersey's RSI increased by only 5%. Population growth rates are expected to decline in the future primarily due to the drop in birth rates already evident. By the year 2000, the U.S. Census Bureau estimates that the U.S. population will reach 322 million, an increase of 58% over the 1970 population. New Jersey has been growing faster than the nation as a whole, but this trend is not expected to continue. By the year 2000 New Jersey's total population is projected to reach more than 10 million people (see Table 1), an increase of 40% over the 1970 population. An even lower growth rate (35%) is projected for New Jersey's RSI. This area is forecasted to reach 19 million by the year 2000 (see Table 2).

The population projections used to determine recreation demand in 1985 and 2000 for New Jersey and its RSI were drawn from several sources. Each of the states involved had determined its projected population and these figures were used although assumptions made and methodologies followed differed from one state to another. These projections, it was decided, could serve as a basis for demand projections in the present plan.

SOCIO-ECONOMIC FACTORS AND RECREATION PARTICIPATION

Age

ORRRC Study Report #20 states that ". . . of all the factors analyzed age has by far the strongest relation to outdoor recreation." For most of the major outdoor activities, the age-to-participation relationship is a regressive one, with each group participating less than the next younger age group. This decline is especially noticeable in the more active pursuits such as bicycling, hiking, horseback riding, water skiing, and swimming

TABLE 1: NEW JERSEY POPULATION FORECASTS

Region	1970 (census)	1985	2000	Region	1970 (census)	1985	2000
Northwest				North Shore			
Hunterdon	69,718	83,463	99,827	Monmouth	459,379	590,835	739,286
Sussex	77,528	94,449	117,908	Ocean (Part of)	192,084	262,184	334,962
Warren	73,879	82,589	93,874	Totals	651,463	853,019	1,074,248
Totals	221,125	260,501	311,609				
				Southwest			
North Central				Burlington (Part of)	321,969	433,392	556,116
Morris	383,454	491,371	620,545	Camden	456,291	553,208	654,747
Passaic (Part of)	37,093	46,409	57,057	Gloucester	172,681	220,187	272,233
Totals	420,547	537,780	677,602	Totals	950,941	1,206,787	1,483,096
Northeast				South Shore			
Bergen	898,012	1,127,701	1,340,514	Atlantic	175.043	196,469	220,817
Essex	929,986	985,540	1,028,961	Burlington (Part of)	1,163	1,588	1,897
Hudson	609,266	620,350	636,400	Ocean (Part of)	16,386	24,325	34,101
Passaic (Part of)	423,689	499,574	576,911	Cape May	59,554	71,916	86,390
Union	543,116	664,096	774,901	Totals	252,146	294,298	343,205
Totals	3,404,069	3,897,261	4,357,687				
				Delaware Bay			
Central Corridor				Cumberland	121,374	143,251	166,098
Mercer	303,968	351,675	403,337	Salem	60,346	69,355	77,304
Middlesex	583,813	730,166	892,499	Totals	181,720	212,606	243,402
Somerset	198,372	252,407	314,315				
Totals	1,086,153	1,334,248	1,610,151	New Jersey	7,168,164	8,596,500	10,101,000

Source: Office of Business Economics – Division of Planning and Research, New Jersey Department of Labor and Industry

TABLE 2: RECREATION SPHERE OF INFLUENCE POPULATION FORECASTS BY STATE AND COUNTY

State/County	1970 (census)	1985	2000
Delaware			
New Castle	385,856	496,154	615,518
Maryland			
Cecil	53,291	67,600	86,000
New York			
Bronx	1,472,216	1,608,150	1,652,985
Kings	2,601,852	2,649,057	2,583,033
New York	1,524,541	1,450,162	1,368,485
Orange	220,558	459,018	717,767
Queens	1,973,708	2,233,128	2,332,129
Richmond	295,443	433,967	602,168
Rockland	229,903	354,250	518,182
Westchester	891,409	1,241,815	1,534,334
Totals	9,209,630	10,429,547	11,309,083
Pennsylvania			
Bucks	415,056	635,663	973,518
Chester	278,311	399,734	574,098
Delaware	600,035	749,648	936,535
Leheigh	255,304	320,718	402,886
Monroe	45,422	60,694	81,099
Montgomery	623,799	870,200	1,213,929
North Hampton	214,368	242,830	275,054
Philadelphia	1,948,609	2,221,194	2,531,717
Pike	11,818	13,260	14,878
Totals	4,392,722	5,513,941	7,003,714
Total RSI	14,041,499	16,507,242	19,014,315

Sources: Delaware State Planning Office, New York Office of Planning Coordination, Maryland State Planning Department, and Pennsylvania State Planning Board.

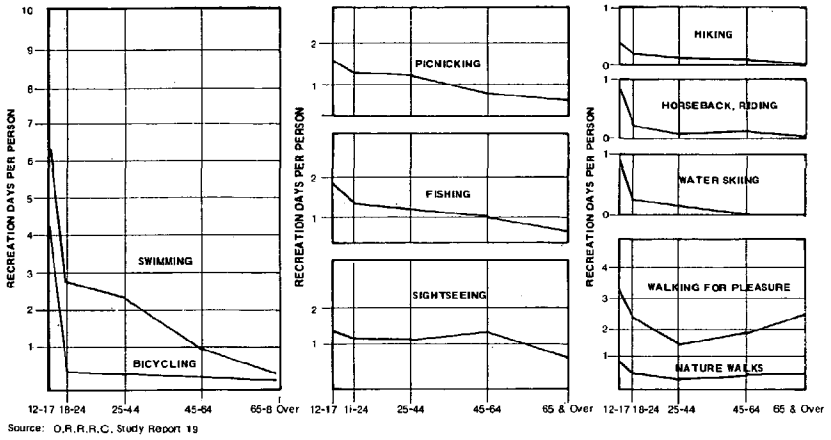
(see graph entitled "Relationship of Age to Recreation Participation"). In regard to driving for pleasure, fishing, picnicking, and sightseeing, people tend to remain fairly active until they reach the 45-64 age category; after that point, a sharp decline occurs in participation.

Walking for pleasure appears to be the most popular outdoor activity of the 65-and-over age group, and, in fact, it increases with age above 44 years. Nature walks, closely related, increase in the middle years also but tend to level off after age 64.

Older people in the next generation may engage in more active pursuits than in the past. ORRRC has stated that:

The older people of today differ from the older people of tomorrow regarding experience with outdoor recreation in their youth. In the present older generation there are many people who never learned to swim or fish, and who never went camping in their youth. Such activities are seldom started in middle age. It is quite likely that the generation which will be

RELATIONSHIP OF AGE TO RECREATION PARTICIPATION



Source: O.R.R.R.C. Study Report 19

55 and over in 25 years was more actively engaged in outdoor recreation earlier in life, and one may suppose that many of these people will continue to some extent to engage in these activities as they grow older.

In a study conducted by the University of Michigan for the ORRRC, survey data indicated that once an individual acquired experience with an activity, he was much more likely to continue participating in this activity as he grew older than people who never engaged in this activity in their youth. Further evidence indicated that to an increasing extent young people are acquiring experience and skills in outdoor activities which their parents do not possess. Thus, one may conclude that the spread of experience with outdoor recreation activities among young people will mean that interest in these activities will continue or will even grow in the years to come.

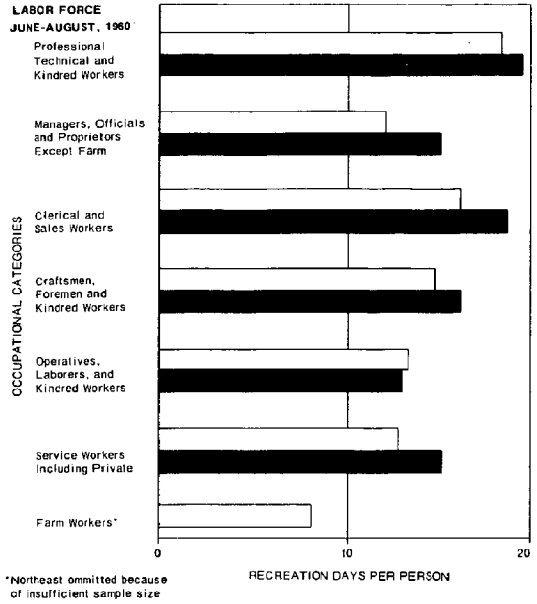
Occupational Distribution

One's occupation appears to have considerable influence on, and is clearly related to, outdoor activity. Referring to the graph entitled "Occupational Category and Recreation Participation", a trend can clearly be observed in the occupational status structure: as one moves from the professional category to farm workers, we find that professional people enjoy the most recreation, farm workers the least. Further, it can be seen that each step up the occupational ladder results in a related increase in participation with the exception of the managers, officials and proprietors category. This group is somewhat out of step with the overall graduation because of its paradoxical high status and low participation relationship.

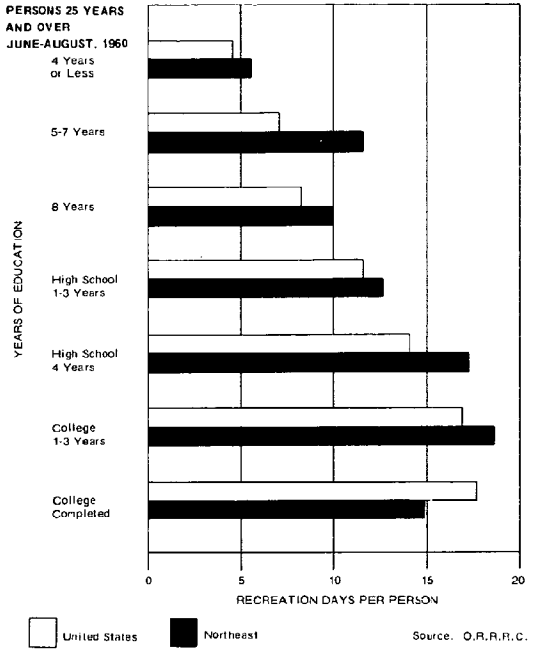
Educational Achievement

As shown in the graph entitled "Educational Achievement and Recreation Participation", education has a strong impact on recreation participation. The more education adults have, the more active they are likely to be. This relationship of education to recreation may, in part, reflect age and income differences. Generally, people with the least amount of education tend to be those of the older generations who, as we have mentioned previously, participate very little in most outdoor activities. Those persons of lower education also make up a high percentage of the lower income groups which rank low in

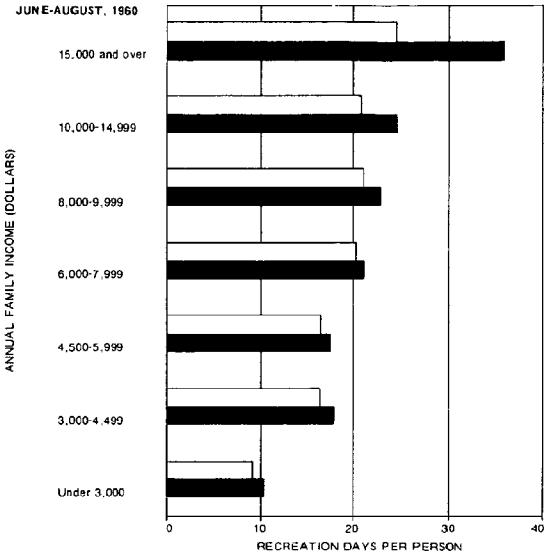
OCCUPATIONAL CATEGORY AND RECREATION PARTICIPATION



EDUCATIONAL ACHIEVEMENT AND RECREATION PARTICIPATION



FAMILY INCOME AND RECREATION PARTICIPATION



recreation participation. Yet, it can be said that education has a definite bearing on outdoor recreation participation even after the influence of these other factors is taken into account.

Family Income

Income in relation to outdoor recreation patterns is of interest because of its decided influence on the degree of participation in specific activities. Furthermore, the high probability of substantial income increases in the future will have an impact on recreation participation in the years to come, especially in such activities as skiing or boating which require special training or expensive equipment.

Generally, participation tends to rise as income increases as shown in the graph entitled "Family Income and Recreation Participation". The sharpest difference occurs between those with incomes under $3,000 and the next higher income bracket. Thereafter, participation steadily increases with each succeeding family income level.

It is, as yet, not entirely clear as to whether this relationship is primarily a reflection of the influence of money per se or whether, on the other hand, it is a class-related occurrence. There are indications that some of the differences between income groups can be ascribed to two other socio-economic characteristics related to income, i.e., occupation and education. In addition, the very low recreation participation by the $3,000-and-under income group can be accounted for in part by the relatively high proportion of older people in this group.

Leisure

Leisure is defined as "the time one has free from his income-earning responsibilities and from personal and family housekeeping activities, such as eating, sleeping, keeping house, personal grooming, shopping, and similar activities that are necessary for day-to-day existence."[1] It has also been defined as activity (or inactivity) undertaken because one wants to do it.

Americans with high incomes have for some time been able to enjoy considerable periods of leisure time and to utilize this time for travel and other forms of recreation. Certain trends appear to be increasing the amount of leisure time available to the average American: shorter work weeks, more three-day holiday weekends, longer vacations and earlier retirement.

[1] Raleigh Barlowe and Milton H. Steinmueller, "Trends in Outdoor Recreation." *Yearbook of Agriculture 1963*, p. 299.

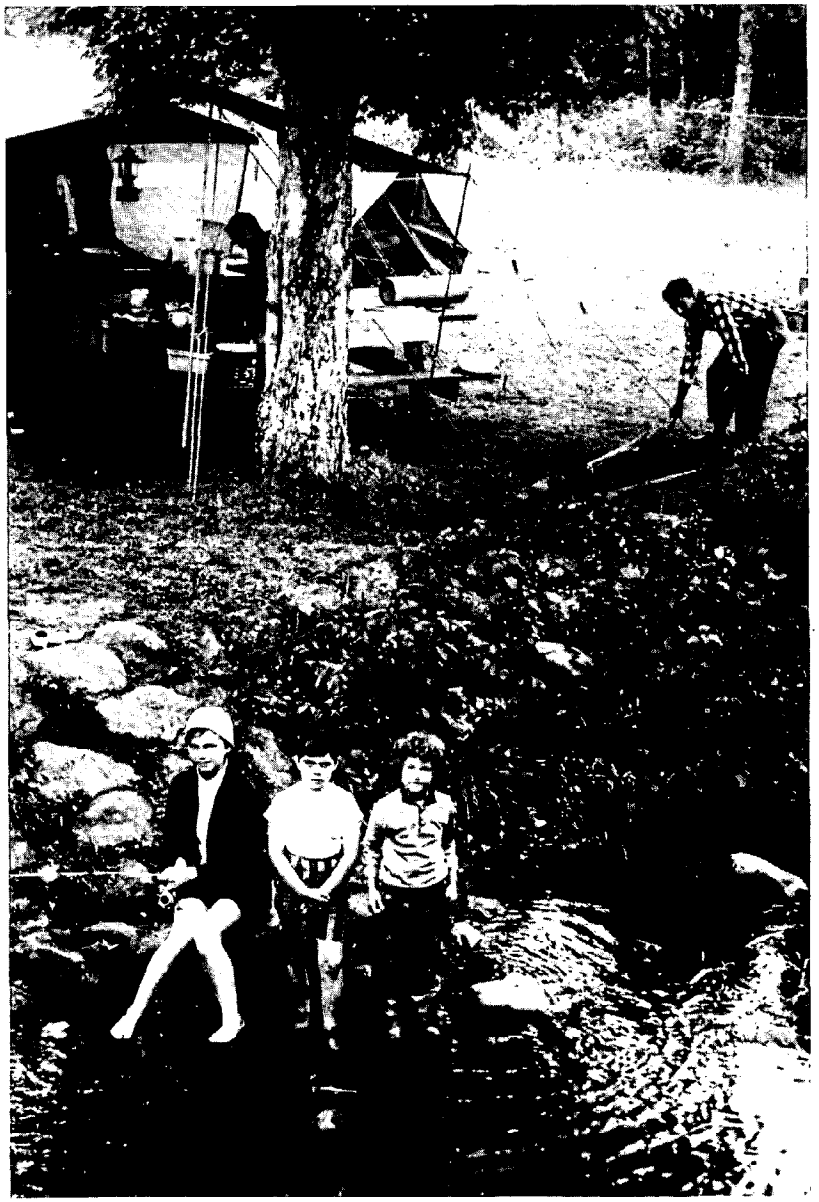
Since 1850, the average work week has decreased from 69.8 to 39.7 hours in 1960 and the downward trend still continues. It would appear that the average American worker now enjoys 30 more hours of free time each week than did his great-great-grandfather. ORRRC has predicted that by the year 2000 the work week may be down to 32 hours. Nevertheless, in attempting to measure leisure time it is necessary to measure not only the actual time spent at work but also such things as travel time to and from work, overtime, moonlighting, time spent on household chores, and do-it-yourself projects. The increase in all of these factors has for many people more than offset the amount of additional leisure time available.

Work patterns are affected by changes occurring in weekend, holiday and vacation time. The nation as a whole in 1971 adopted a system of five three-day holiday weekends that now include Memorial Day, Labor Day, Columbus Day, Veterans Day and Washington's Birthday. Other holidays may be added to this list at a later date. The impact of this change will be to draw larger numbers of people to recreation areas farther from home than would normally occur on two-day weekends.

Another similar but even more important trend is toward the four-day, forty-hour (4-40) work week. By 1971 an estimated 700 American companies were giving employees three out of every seven days to themselves, and it is estimated that by early 1972 at least 2,000 companies will be comtemplating such a shift. The nation's largest employer, the Federal Government, will run a four-day work week experiment for Social Security workers at the Agency's Baltimore headquarters as soon as Congress passes enabling legislation. Municipal employees in Long Beach and Atlanta have also made the switch. This means regular three-day weekends with a greater potential for longer trips and more recreation participation.

It is anticipated that this change will dramatically increase participation in leisure time activities including outdoor recreation. Although the evidence is not yet available to substantiate this prediction, early studies on the habits of people on the four-day work schedule indicate striking increases in travel and activities such as swimming and boating, hunting and fishing.

Early retirement has increased due to improved private pension plans and higher social security benefits. Many of the



Stokes State Forest

elderly, however, find that their fixed incomes are not adequate to meet higher costs created by growing inflation. Thus, although many more people have longer periods of leisure due to early retirement than ever before, many of these people find themselves unable to afford costly leisure time activities.

Whatever the major cause may be, it can be demonstrated that interest in outdoor recreation and expenditure of funds for fees, travel and equipment are growing at a significant rate and attendance at park and recreation areas has also increased. It is estimated that the dollar volume of leisure time expenditures —estimated for 1972 at about $105 billion—will more than double during the decade of the 1970s. The most spectacular splurge is in purchases of products used in the pursuit of pleasure or relaxation—from bowling balls to bicycles, and from cameras to cabin cruisers. By 1978, the number of camping vehicles in use in the United States is projected to reach 7.5 million, more than double the present number. Other activities showing tremendous growth are bicycling, snow skiing, snowmobiling and tennis. As a result, many areas, the national parks for example where the increased demands are already being felt, are now placing limits on their attendance capacity in order to protect the resource base.

In spite of the increase in participation among some groups, the amount of leisure time available to most Americans has not significantly changed. This is due to the fact that much of the additional time away from work has been consumed by other activities such as longer commuting hours, going back to school, second jobs and overtime work and other at home projects related to day-to-day existence. Studies have shown, for example, that the total time the homemaker used for her family's work was not less, on the average, in 1967-68 than it was 40 years earlier. While time spent in food preparation and clean up had diminished by half an hour per day, time spent for marketing and other tasks had increased more than that.

Other important factors limiting leisure time activity include high unemployment rates that affect millions of Americans and low income levels. The median income level in America is generally inadequate to support extensive participation in leisure activities requiring costly equipment, ability to travel, high fees, etc., when available financial resources must

be devoted to survival items of food, housing and medicine. The majority of people affected by these factors reside in the nation's urban areas. Their leisure time opportunities are restricted also by the general lack of conveniently located open space and recreation facilities.

Another problem relates to the availability of resources. Natural areas require periods without use in order to rest and to renew themselves after experiencing extensive human impact. With traditional recreation patterns, areas were heavily used two or three days a week on the average and the remaining four days the resources were little used. With the increase in the 4-day work week this pattern will change. Businesses that adjust to the system by opening for trade only four days a week are likely to split fairly evenly in electing Friday or Monday as the additional holiday. Thus recreation areas will now be experiencing a four-day peak use period leaving only three days for the resources to rest.

It is reasonable to conclude that Americans with adequate incomes who have an increasing number of leisure hours will spend more time in recreation participation. To some extent this impact has already been felt. Nevertheless, dramatic large scale increases in leisure activities are not likely to occur in the immediate future—the next five to ten years—unless leisure time and income for all Americans increase significantly.

Outdoor Recreation Demand 1970

Swimming ranks as the most popular outdoor recreation activity in New Jersey. During the peak season nearly 40 million people desire to swim in New Jersey, creating a demand on an average weekend day during the peak season of 775,000 recreation days (each recreation day represents one person participating in one activity for an entire day). (see Tables 3 and 4.) Driving for pleasure and walking for pleasure are second and third in popularity with peak season demands of over 33 million and 29 million, respectively. Playing outdoor games, ranked fourth in activity popularity, accounts for a demand of almost 20 million people. Picnicking, sightseeing, fishing, boating, bicycling and nature walking round out the ten most popular outdoor recreation activities in 1970.

Outdoor recreation in New Jersey on an average weekend day in the 1970 peak season totaled 4,668,400 people. Nearly 48% of this demand occurred on vacations, trips and outings taken in New Jersey by out-of-state residents and New Jersey residents traveling outside of their region. This high away demand is indicative of the tremendous attraction that the various recreational areas in New Jersey, in particular the shore areas, exert on both New Jersey residents and people in New Jersey's RSI.

Approximately 60% of the total away demand, 2,235,100 people on an average weekend day, or nearly 30% of the total demand was generated by out-of-state residents desiring to recreate in New Jersey. This high demand from out-of-state residents may be traced specifically to two major New Jersey recreation attractions, the shore and the lake regions, which are within close proximity to two of the largest metropolitan centers in the United States, New York City and Philadelphia.

Since New Jersey residents can easily drive to any region in the State in a relatively short time, they may satisfy their recreation desires, which cannot be met by recreation facilities in their own region, in other regions. For the most part, the Northwest, North Shore and South Shore regions, which possess attractive natural recreation features and the major

TABLE 3: RANKING BY POPULARITY OF TWENTY-THREE OUTDOOR RECREATION ACTIVITIES 1970

(In Recreation Days, Peak Season Demand)

Swimming	38,731,414	Ice Skating	5,014,118
Driving for Pleasure	33,497,825	Camping	2,778,600
Walking for Pleasure	29,134,123	Hunting	3,728,734
Playing Outdoor Games	19,733,592	Water Skiing	1,823,584
Picnicking	14,111,780	Hiking	1,743,625
Sightseeing	12,063,002	Attending Outdoor Concerts	1,683,857
Fishing	9,637,482	Horseback Riding	1,268,661
Boating	7,964,043	Snow Skiing	1,201,668
Bicycling	7,131,093	Sailing	613,631
Nature Walking	5,636,472	Canoeing	468,090
Attending Outdoor Sport	5,537,280	Mountain Climbing	63,809
Sledding	5,528,605		

portion of the developed recreation facilities, receive the bulk of this interregional demand.

As home demand is a function of regional population, the highest home demands are in the more densely populated regions. The Northeast Region alone accounts for almost 50% of the State home demand.

REGIONAL DEMAND

On an average weekend day during the peak season there is an outdoor recreation (home and away) demand of 261,900 people in the Northwest Region. The region's rough terrain and scenic qualities and abundance of state, federal and private recreation facilities have a combined effect of attracting a relatively high away demand of 181,700 people.

Over 64% of the North Central Region's total demand, 424,300 people, is away demand. This large away demand, 271,600 people, can be attributed to the region's close proximity to the densely populated Newark-New York City

TABLE 4: RECREATION DEMAND IN NEW JERSEY AVERAGE WEEKEND DAY IN THE PEAK SEASON 1970

	OUTDOOR RECREATION ACTIVITIES																						
Region	Driving for Pleasure	Walking for Pleasure	Playing Outdoor Games	Swimming	Sightseeing	Bicycling	Fishing	Attending Outdoor Sports	Picnicking	Nature Walking	Boating	Hunting	Horseback Riding	Camping	Ice* Skating	Sledding	Hiking	Water Skiing	Outdoor Concerts	Canoeing	Sailing	Mountain Climbing	Snow Skiing	Total
Northwest	34,200	26,400	19,300	46,800	14,300	6,600	13,400	6,400	16,100	6,700	9,500	3,400	1,100	4,300	38,900	5,500	1,800	1,900	1,700	500	800	500	1,800	261,900
Home	11,800	12,400	7,600	8,900	2,900	2,900	1,000	1,500	3,800	1,400	1,800	600	600		18,800	2,000	600	600	600	100	100	100	100	80,200
Away	22,400	14,000	11,700	37,900	11,400	3,700	12,400	4,900	12,300	5,300	7,700	2,800	500	4,300	20,100	3,500	1,200	1,300	1,100	400	700	400	1,700	181,700
North Central	55,900	44,500	31,800	73,500	22,600	11,100	20,500	10,200	25,700	10,500	15,100	5,200	1,900	6,500	65,800	9,100	2,900	3,100	2,800	600	1,300	800	2,700	424,300
Home	22,400	23,600	14,400	16,900	5,500	5,600	2,000	2,800	7,300	2,600	3,500	1,100	1,100		35,700	3,900	1,200	1,100	1,200	300	200	200	100	152,700
Away	33,500	20,900	17,400	56,600	17,100	5,500	18,500	7,400	18,400	7,900	11,600	4,100	800	6,500	30,100	5,200	1,700	2,000	1,600	500	1,100	600	2,600	271,600
Northeast	192,000	197,800	121,900	154,800	50,200	46,800	21,700	24,900	64,800	23,900	32,100	10,400	9,100	2,000	233,000	32,900	10,000	9,700	9,900	2,400	1,700		1,600	1,253,600
Home	181,500	191,200	116,400	137,000	44,800	45,100	15,900	22,600	59,000	21,400	28,500	9,100	8,900		225,600	31,300	9,500	9,100	9,400	2,200	1,400		800	1,170,700
Away	10,500	6,600	5,500	17,800	5,400	1,700	5,800	2,300	5,800	2,500	3,600	1,300	200	2,000	7,400	1,600	500	600	500	200	300		800	82,900
Central Corridor	65,600	65,800	41,100	58,700	18,200	15,700	9,400	8,900	23,000	8,600	11,800	3,800	3,000	1,500	77,400	11,200	3,400	3,400	3,400	800	700		900	434,300
Home	57,900	61,000	37,100	43,700	14,300	14,400	5,100	7,200	18,800	6,800	9,100	2,900	2,800		72,000	10,000	3,000	2,900	3,000	700	500		300	373,500
Away	7,700	4,800	4,000	13,000	3,900	1,300	4,300	1,700	4,200	1,800	2,700	900	200	1,500	5,400	1,200	400	500	400	100	200		600	60,800
North Shore	105,300	80,800	59,000	145,500	44,700	20,300	42,100	19,800	50,100	20,700	29,800	10,400	3,400	13,600	92,700	17,000	5,500	5,900	5,200	1,500	2,600		5,700	781,600
Home	34,700	36,600	22,300	26,200	8,600	8,600	3,000	4,300	11,300	4,100	5,400	1,700	1,700		43,200	6,000	1,800	1,700	1,800	400	300		200	223,900
Away	70,600	44,200	36,700	119,300	36,100	11,700	39,100	15,500	38,800	16,600	24,400	8,700	1,700	13,600	49,500	11,000	3,700	4,200	3,400	1,100	2,300		5,500	557,700
Southwest	59,700	58,800	37,100	53,300	17,000	14,100	9,300	8,200	21,400	8,100	11,000	3,600	2,700	1,700	35,600	10,100	3,100	3,000	3,000	700	700		900	363,200
Home	50,800	53,400	32,500	38,300	12,500	12,600	4,400	6,300	16,500	6,000	7,900	2,500	2,500		32,400	8,700	2,600	2,500	2,600	600	400		200	296,200
Away	8,900	5,500	4,600	15,000	4,500	1,500	4,900	1,900	4,900	2,100	3,100	1,100	200	1,700	3,200	1,400	500	500	400	100	300		700	67,000
South Shore	140,600	93,800	74,800	225,100	68,300	24,300	71,700	29,600	74,300	31,500	46,000	16,300	3,700	24,600	54,500	22,000	7,300	8,300	6,800	2,200	4,200		10,000	1,039,900
Home	13,400	14,200	8,600	10,200	3,300	3,300	1,200	1,700	4,400	1,600	2,100	700	700		8,600	2,300	700	700	700	200	100		100	78,800
Away	127,200	79,600	66,200	214,900	65,000	21,000	70,500	27,900	69,900	29,900	43,900	15,600	3,000	24,600	45,900	19,700	6,600	7,600	6,100	2,000	4,100		9,900	961,100
Delaware Bay	16,600	14,500	9,800	19,000	5,900	3,500	4,600	2,700	6,900	2,700	3,900	1,300	700	1,300	9,700	2,800	900	900	800	200	300		600	109,600
Home	9,700	10,200	6,200	7,300	2,400	2,400	800	1,200	3,100	1,100	1,500	500	500		6,900	1,700	500	500	500	100	100		100	57,300
Away	6,900	4,300	3,600	11,700	3,500	1,100	3,800	1,500	3,800	1,600	2,400	800	200	1,300	2,800	1,100	400	400	300	100	200		500	52,300
State Totals	669,900	582,500	394,800	774,700	241,200	142,400	192,700	110,700	282,300	112,700	159,200	54,400	25,600	55,500	507,600	110,600	34,900	36,200	33,600	9,100	12,300	1,300	24,200	4,668,400
Home	382,200	402,600	245,100	288,500	94,300	94,900	33,400	47,600	124,200	45,000	59,800	19,100	18,800		443,200	65,900	19,900	19,100	19,800	4,600	3,100	300	1,900	2,433,300
Away	287,700	179,900	149,700	486,200	146,900	47,500	159,300	63,100	158,100	67,700	99,400	35,300	6,800	55,500	164,400	44,700	15,000	17,100	13,800	4,500	9,200	1,000	22,300	2,235,100

*Reflects the skating demand for natural and artificial areas.

metropolitan area and the retention of the rural character of portions of the region.

The highly urbanized Northeast Region, where nearly 50% of New Jersey's population lives, has the highest home demand in the State—1,170,700 people on an average weekend day during the peak season. This high demand is due, in part, to the large number of low income people living in the urban centers who lack the mobility to travel to recreation areas outside of the region. The region's low away demand, 82,900 people, is indicative of its lack of recreation facilities to attract out of region residents.

The Central Corridor has a fairly high home demand of 373,500 people and a relatively low away demand of 60,800 people. This is the result of the increasing suburban population that is raising the home demand and the general lack of regional recreation facilities that discourage away demand.

The North Shore Region with its extensively developed water-oriented recreation facilities has a high recreation demand of 781,600. Due primarily to its proximity to the highly populated New York-New Jersey urban complex, the region has an away demand of 557,700 people on an average weekend day in the peak season.

The Southwest Region, one of the most populated regions of the State, has a home demand of 296,200 people on an average weekend day during the peak season. Due to the region's lack of recreation facilities, the away demand amounts to only 67,000 people.

Due to the popularity of water-based activities, the South Shore Region has an away demand totaling 961,100 people; the highest in the State. This region is readily accessible to two of the country's largest concentrations of population—the Garden State Parkway links the region to the northeastern New Jersey-New York metropolitan area, and the Atlantic City Expressway is the major east-west route linking the region to the Philadelphia area. The overall demand of 1,039,900 people is the second highest in the State.

The Delaware Bay Region, the least populated region in the State, has a home demand for outdoor recreation on the average weekend day in the peak season of 57,300 people, the lowest of all regions. The region's away demand of only 52,300 people is also the lowest in the State.

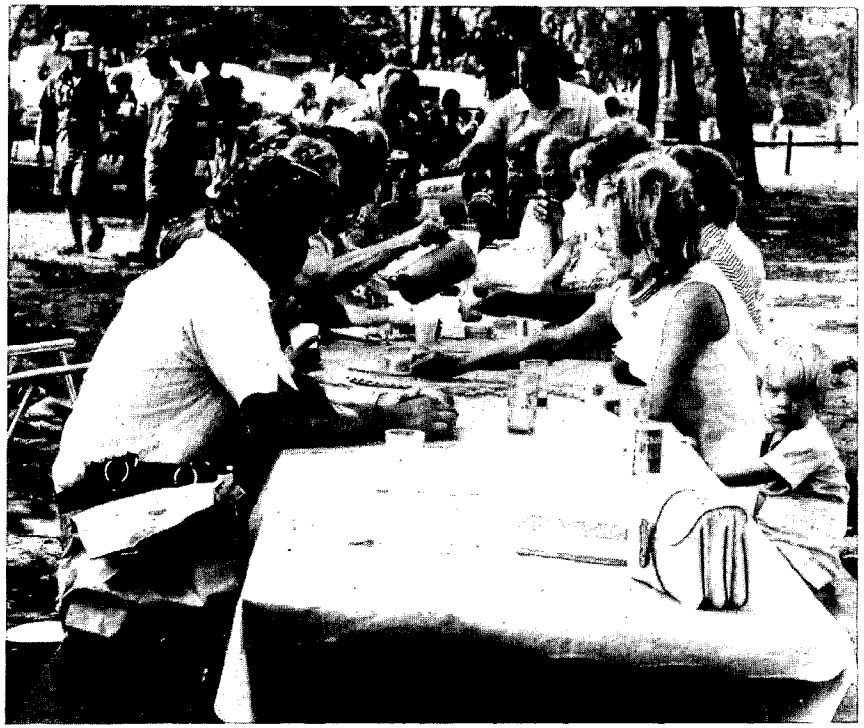


TABLE 5: OUTDOOR RECREATION DEMAND* 1970, 1985 and 2000 (by Region)

Region	1970		1985		2000	
	Home	Total	Home	Total	Home	Total
Northwest	80,200	261,900	119,500	349,800	181,200	483,400
North Central	152,700	424,300	249,000	593,300	394,300	846,200
Northeast	1,170,700	1,253,600	1,705,100	1,810,100	2,387,200	2,525,600
Central Corridor	373,500	434,300	563,700	660,400	882,400	983,200
North Shore	223,900	781,600	373,100	1,078,800	588,500	1,516,200
Southwest	296,200	363,200	475,700	560,100	728,000	839,600
South Shore	78,800	1,039,900	116,100	1,329,900	168,400	1,770,300
Delaware Bay	57,300	109,600	84,700	151,000	120,800	208,400
State Totals	2,433,300	4,668,400	3,706,900	6,533,400	5,450,800	9,172,900

*Demand on an average weekend day in the peak season

Outdoor Recreation Demand 1985 and 2000

The total outdoor recreation demand on the average weekend day in the peak season is projected to reach 6,533,400 people by 1985 and 9,172,400 by the year 2000 (refer to Tables 5, 6 and 7). These figures represent gains of 40% and 96%, respectively, over the 1970 demand. This tremendous increase in future demand reflects the anticipated impact of population growth, improvements in socio-economic conditions in New Jersey and expansion of existing facility supply on recreation participation.

Due to anticipated population growth in New Jersey, the demand for home oriented outdoor recreation opportunities is estimated to increase at a more rapid pace than away demand. By the year 2000, the home demand will have increased 124% while away demand will have increased 96%. In 1970, 52% of the total demand was home demand; by 2000, home demand will account for nearly 60% of total demand.

TABLE 6: RECREATION DEMAND IN NEW JERSEY AVERAGE WEEKEND DAY IN THE PEAK SEASON, 1985

Region	OUTDOOR RECREATION ACTIVITIES																						
	Driving for Pleasure	Walking for Pleasure	Playing Outdoor Games	Swimming	Sightseeing	Bicycling	Fishing	Attending Outdoor Sports	Picnicking	Nature Walking	Boating	Hunting	Horseback Riding	Camping	Ice Skating	Sledding	Hiking	Water Skiing	Outdoor Concerts	Canoeing	Sailing	Mountain Climbing	Snow Skiing	Total
Northwest	42,200	32,700	26,400	65,100	21,300	8,300	16,000	7,200	19,100	8,100	13,300	3,400	1,300	7,000	55,600	8,200	2,900	3,100	2,300	700	1,100	800	2,700	349,800
Home	16,300	17,200	11,700	14,000	4,900	4,000	1,500	2,200	4,400	2,000	3,000	800	800		29,800	3,100	1,100	1,000	900	300	200	200	100	119,500
Away	25,900	15,500	14,700	51,100	16,400	4,300	14,500	5,000	14,700	6,100	10,300	2,600	500	7,000	25,800	5,100	1,800	2,100	1,400	400	900	600	2,600	230,300
North Central	72,400	58,700	46,100	105,300	34,500	14,700	24,800	12,000	33,500	13,100	21,700	5,600	2,400	10,500	101,500	14,100	5,000	5,200	3,900	1,100	1,700	1,300	4,100	593,300
Home	33,700	35,600	24,200	26,900	10,000	8,300	3,100	4,600	11,500	4,000	6,300	1,600	1,600		61,500	6,400	2,300	2,100	1,900	500	300	400	200	249,000
Away	38,700	23,100	21,900	76,400	24,500	6,400	21,700	7,400	22,000	9,100	15,400	4,000	800	10,500	40,100	7,700	2,700	3,100	2,000	600	1,400	900	3,900	344,300
Northeast	256,100	265,300	182,900	233,200	80,400	62,200	29,400	35,300	89,900	32,200	50,300	12,800	12,100	3,300	357,600	48,500	17,600	16,500	14,700	4,000	2,900		2,900	1,810,100
Home	243,900	258,000	176,000	209,200	72,700	60,200	22,600	33,000	83,000	29,300	45,500	11,600	11,800		347,800	46,100	16,800	15,500	14,100	3,800	2,500		1,700	1,705,100
Away	12,200	7,300	6,900	24,000	7,700	2,000	6,800	2,300	6,900	2,900	4,800	1,200	300	3,300	9,800	2,400	800	1,000	600	200	400		1,200	105,000
Central Corridor	92,400	93,600	65,100	99,100	30,500	22,100	12,700	13,000	33,400	12,100	19,100	4,900	4,300	2,400	126,300	17,600	6,400	6,000	5,300	1,400	1,200		1,500	660,400
Home	83,500	88,300	60,100	71,600	24,900	20,600	7,700	11,300	28,400	10,000	15,600	4,000	4,100		119,100	15,800	5,800	5,300	4,800	1,300	900		600	583,700
Away	8,900	5,300	5,000	17,500	5,600	1,500	5,000	1,700	5,000	2,100	3,500	900	200	2,400	7,200	1,800	600	700	500	100	300		900	76,700
North Shore	135,000	105,200	84,600	206,800	67,600	26,700	50,700	22,900	64,600	25,700	42,400	10,800	4,300	22,100	142,100	26,300	9,400	9,800	7,400	2,200	3,400		8,700	1,078,800
Home	53,400	56,500	38,400	45,800	15,900	13,200	4,900	7,200	18,200	6,400	10,000	2,500	2,600		76,100	10,100	3,700	3,400	3,100	800	500		400	373,100
Away	81,600	48,700	46,200	161,000	51,700	13,500	45,800	15,700	46,400	19,300	32,400	8,300	1,700	22,100	66,000	16,200	5,700	6,500	4,300	1,400	2,900		8,300	705,700
Southwest	85,700	86,000	60,200	85,000	29,000	20,300	12,700	12,200	31,500	11,500	18,200	4,600	3,900	2,800	59,700	16,300	5,900	5,600	4,900	1,400	1,200		1,500	560,100
Home	75,500	79,900	54,400	64,800	22,500	18,600	7,000	10,200	25,700	9,100	14,100	3,600	3,700		55,400	14,300	5,200	4,800	4,400	1,200	800		500	475,700
Away	10,200	6,100	5,800	20,200	6,500	1,700	5,700	2,000	5,800	2,400	4,100	1,000	200	2,800	4,300	2,000	700	800	500	200	400		1,000	84,400
South Shore	165,400	107,300	96,500	305,900	98,700	28,900	84,200	30,800	89,900	36,900	61,700	15,900	4,000	39,900	74,700	32,700	11,500	12,900	8,800	2,800	5,500		15,000	1,329,900
Home	18,400	19,500	13,300	15,800	5,500	4,500	1,700	2,500	6,300	2,200	3,400	900	900		13,500	3,500	1,300	1,200	1,100	300	200		100	116,100
Away	147,000	87,800	83,200	290,100	93,200	24,400	82,500	28,300	83,600	34,700	58,300	15,000	3,100	39,900	61,200	29,200	10,200	11,700	7,700	2,500	5,300		14,900	1,213,800
Delaware Bay	21,300	18,900	14,100	27,100	9,100	4,600	5,700	3,300	9,000	3,500	5,700	1,400	800	2,200	14,500	4,100	1,500	1,400	1,200	300	400		900	151,000
Home	13,300	14,100	9,600	11,400	4,000	3,300	1,200	1,800	4,500	1,600	2,500	600	600		10,800	2,500	900	800	800	200	100		100	84,700
Away	8,000	4,800	4,500	15,700	5,100	1,300	4,500	1,500	4,500	1,900	3,200	800	200	2,200	3,700	1,600	600	600	400	100	300		800	66,300
State Totals	870,500	787,700	575,900	1117,500	371,100	187,800	236,200	136,700	570,900	143,100	232,400	59,400	33,100	90,200	933,100	167,800	60,200	60,600	48,500	13,900	17,400	2,100	37,300	6,533,400
Home	538,000	569,100	387,700	461,500	160,400	132,700	49,700	72,800	182,000	64,600	100,400	25,600	26,100		714,000	101,800	37,100	34,100	31,100	8,400	5,500	600	3,700	3,706,900
Away	332,500	198,600	188,200	656,000	210,700	55,100	186,500	63,900	188,900	78,500	132,000	33,800	7,000	90,200	219,100	66,000	23,100	26,500	17,400	5,500	11,900	1,500	33,600	2,826,500

Since home demand is a function of each region's population, the regions with high projected population growth rates also have the highest relative increases in home demand. Between 1970 and 2000 the North Shore Region's population is projected to increase by 63%, the highest relative gain in the State. During the same time period, the North Shore's demand is estimated to increase 163%, the highest proportional regional increase in New Jersey. Similarly, the Northeast Region, with the lowest projected growth rate (23%), will have the lowest relative gain in home demand, 115%.

Each region's relative share of the total away demand is expected to remain similar to that of 1970. The main recreation attractions will still remain in the shore and lake regions of the State and therefore these regions will receive the major portion of the away demand. The South Shore Region with away demands in 1985 and 2000 of 1,213,800 and 1,601,900, respectively, will remain the focal point of outdoor recreation in New Jersey.

TABLE 8: THE TWELVE FASTEST GROWING ACTIVITIES
DEMAND ON AN AVERAGE WEEKEND DAY IN PEAK SEASON

	Percentage Rate of Increase							
	1970-1985	1970-2000		1970-1985	1970-2000		1970-1985	1970-2000
Camping	63%	161%	Sightseeing	54%	126%	Playing		
Water Skiing	67%	160%	Ice Skating	53%	124%	Outdoor Games	46%	108%
Snow Skiing	54%	148%	Sledding	52%	119%	Attending		
Hiking	51%	137%	Boating	46%	116%	Outdoor Concerts	44%	106%
Canoeing	53%	131%	Swimming	44%	110%			

The ten most popular activities in 1970 will continue to have the highest demands in 1985 and 2000. However, certain activities will increase in popularity much more rapidly than others. Twelve activities will more than double in demand between 1970 and 2000 (see Table 8). More than half of these activities require either expensive equipment or specialized training for participation. The high demand for specialized activities may be directly related to the anticipated gains in such socio-economic characteristics as income, education, and leisure time.

TABLE 7: RECREATION DEMAND IN NEW JERSEY
AVERAGE WEEKEND DAY IN THE PEAK SEASON, 2000

	OUTDOOR RECREATION ACTIVITIES																						
Region	Driving for Pleasure	Walking for Pleasure	Playing Outdoor Games	Swimming	Sightseeing	Bicycling	Fishing	Attending Outdoor Sports	Picnicking	Nature Walking	Boating	Hunting	Horseback Riding	Camping	Ice Skating	Sledding	Hiking	Water Skiing	Outdoor Concerts	Canoeing	Sailing	Mountain Climbing	Snow Skiing	Total
Northwest	55,000	42,400	36,900	92,500	30,600	10,700	21,000	9,800	27,300	10,500	19,400	4,000	1,700	11,300	79,300	11,100	4,600	4,600	3,300	1,100	1,000	1,100	4,400	483,400
Home	22,800	24,000	17,700	22,500	7,800	5,700	2,200	2,700	8,100	2,800	4,800	900	1,100		46,900	5,000	1,900	1,700	1,400	300	400	300	200	181,200
Away	32,200	18,400	19,200	70,000	22,800	5,000	18,800	7,100	19,200	7,700	14,600	3,100	600	11,300	32,400	6,100	2,500	2,900	1,900	800	600	800	4,200	302,200
North Central	97,700	79,700	67,200	153,500	50,900	19,800	33,000	16,600	46,300	17,600	32,200	6,600	3,200	16,900	150,500	20,100	7,900	8,200	5,800	2,000	1,600	2,000	6,700	846,200
Home	49,600	52,200	38,500	48,900	16,900	12,300	4,900	6,000	17,600	6,100	10,400	1,900	3,200		102,000	11,000	4,200	3,800	3,000	700	900	700	400	394,300
Away	48,100	27,500	28,700	104,600	34,000	7,500	28,100	10,600	28,700	11,500	21,800	4,700	900	16,900	48,500	9,100	3,700	4,400	2,800	1,300	900	1,300	6,300	451,900
Northeast	334,100	334,100	256,500	347,500	119,600	81,700	46,200	41,600	122,300	42,800	74,000	13,700	15,100	5,300	523,700	73,500	28,200	25,800	20,100	4,800	6,400		4,600	2,525,600
Home	319,000	335,500	247,500	314,600	108,900	79,300	31,400	38,300	113,300	39,200	67,100	12,200	14,800		511,800	70,600	27,000	24,400	19,200	4,400	6,100		2,600	2,387,200
Away	15,100	8,600	9,000	32,900	10,700	2,400	8,800	3,300	9,000	3,600	6,900	1,500	300	5,300	11,900	2,900	1,200	1,400	900	400	300		2,000	138,400
Central Corridor	128,900	130,300	98,100	140,300	48,000	31,000	18,000	16,600	48,500	17,100	29,800	5,600	5,700	3,900	197,800	28,200	10,900	10,000	7,700	1,900	2,500		2,500	983,200
Home	117,900	124,000	91,500	116,300	40,200	29,300	11,600	14,200	41,900	14,500	24,800	4,500	5,500		189,100	26,100	10,000	9,000	7,100	1,600	2,300		1,000	882,400
Away	11,000	6,300	6,600	24,000	7,800	1,700	6,400	2,400	6,500	2,600	5,000	1,100	200	3,900	8,700	2,100	900	1,000	600	300	200		1,400	100,800
North Shore	180,000	140,700	121,500	298,100	98,700	35,400	67,000	31,900	88,400	34,000	62,500	12,800	5,700	35,500	205,900	36,500	14,500	15,200	10,700	3,800	3,500		13,800	1,516,200
Home	78,600	82,700	61,000	77,600	26,900	19,600	7,700	9,500	27,900	9,700	16,500	3,000	3,700		126,100	17,400	6,700	6,000	4,700	1,100	1,500		600	588,500
Away	101,400	58,000	60,500	220,500	71,800	15,800	59,300	22,400	60,500	24,300	46,100	9,800	2,000	35,500	79,800	19,100	7,800	9,200	6,000	2,700	2,000		13,200	927,700
Southwest	121,300	121,500	91,800	134,800	46,100	29,000	18,100	15,900	46,200	16,400	28,600	5,400	5,200	4,500	94,800	26,400	10,200	9,500	7,200	1,800	2,300		2,600	839,600
Home	108,600	114,200	84,200	107,100	37,100	27,000	10,700	13,100	38,600	13,300	22,800	4,200	5,000		89,600	24,000	9,200	8,300	6,500	1,500	2,100		900	728,000
Away	12,700	7,300	7,600	27,700	9,000	2,000	7,400	2,600	7,600	3,100	5,800	1,200	200	4,500	5,200	2,400	1,000	1,200	700	300	200		1,700	111,600
South Shore	207,900	130,800	128,600	422,200	137,900	34,600	109,300	43,400	118,000	46,900	88,300	18,700	4,800	64,000	94,700	40,100	18,200	18,500	12,200	5,100	4,100		24,000	1,770,300
Home	25,100	26,400	19,500	24,800	8,600	6,200	2,500	3,000	8,900	3,100	5,300	1,000	1,200		20,700	5,600	2,100	1,900	1,500	300	500		2,000	168,400
Away	182,800	104,400	109,100	397,400	129,300	28,400	106,800	40,400	109,100	43,800	83,000	17,700	3,600	64,000	74,000	34,500	14,100	16,600	10,700	4,800	3,600		23,800	1,601,900
Delaware Bay	27,700	24,400	19,700	39,200	13,100	5,900	7,600	4,300	12,200	4,600	8,200	1,700	1,000	3,500	20,800	5,800	2,300	2,300	1,700	500	500		1,400	208,400
Home	17,800	18,700	13,800	17,600	6,100	4,400	1,800	2,100	6,300	2,200	3,700	700	800		16,300	3,900	1,500	1,400	1,100	200	300		100	120,800
Away	9,900	5,700	5,900	21,600	7,000	1,500	5,800	2,200	5,900	2,400	4,500	1,000	200	3,500	4,500	1,900	800	900	600	300	200		1,300	87,600
State Totals	1,152,600	1,013,900	820,300	1,628,100	544,900	248,100	314,200	180,100	509,200	189,900	343,100	68,500	42,400	144,900	1,367,500	241,700	94,600	94,100	68,700	21,000	22,100	3,100	59,900	9,172,900
Home	739,400	777,700	573,700	729,400	252,500	183,800	72,800	88,900	262,600	90,900	155,400	28,400	34,400		1,102,500	163,600	62,600	56,500	44,500	10,100	14,100	1,000	6,000	5,450,800
Away	413,200	236,200	246,600	898,700	292,400	64,300	241,400	91,200	246,600	99,000	187,700	40,100	8,000	144,900	265,000	78,100	32,000	37,600	24,200	10,900	8,000	2,100	53,900	3,722,100

SUPPLY OF LAND RESOURCES III

Existing and Proposed Supply of Recreation Resources*

EXISTING

Prior to the passage and implementation of the New Jersey Green Acres Bond Act of 1961, open space recreation land under public ownership (federal, interstate, state, county and municipal) totaled 323,068 acres. Due primarily to the accomplishments of the Green Acres Program and federal acquisition for the Delaware Water Gap National Recreational Area, the public land total increased to 473,283 acres in 1970.

In addition to the publicly owned lands, there are 178,581 acres of privately owned land devoted to outdoor recreation. Combined, the public and private sectors provide 651,864 acres of recreation land. (See Table 1.)

The State administers the bulk of New Jersey's recreation land, 371,842 acres or 57%. The private sector's contribution of 178,581 acres amounts to 27.4% of the State's total recreation land. At present the Federal Government provides 45,239 acres or just 7% of the total recreation land while municipal and county levels of government, together, supply 53,772 acres or 8.2%.

* Major public open space and recreation areas are shown on Appendix Q map entitled, "Major Public Open Space and Recreation Areas in New Jersey".

Presently, the South Shore Region has 156,509 acres of recreation land and the Northwest Region has 141,919. These two regions account for over 45% of the recreation land in New Jersey.

PROPOSED

During the past several years the voters of New Jersey have approved two major recreation land acquisition bond issues, the New Jersey Green Acres Bond Act of 1971 for $80 million and the Water Resources Bond Act of 1969 which pro-

TABLE 1: EXISTING RECREATION LAND 1970 (acres)

Region	Municipal	County	State	Federal	Interstate	Private	Total
Northwest	347	4	60,257	16,368	–	64,943	141,919
North Central	1,605	4,793	26,069	6,856	–	38,238	75,561
Northeast	5,375	16,358	1,322	16	2,430	11,827	37,328
Central Corridor	4,151	7,577	5,395	–	–	11,843	28,966
North Shore	1,310	2,109	51,271	733	–	8,418	63,841
Southwest	1,384	4,030	67,432	–	–	18,094	90,940
South Shore	1,110	1,549	113,333	20,631	–	19,886	156,509
Delaware Bay	1,905	165	48,763	635	–	5,332	56,800
State Totals	17,187	36,585	371,842	45,239	2,430	178,581	651,864

vided $29 million for reservoir land purchase. Primarily through these new bond issues, plus completion of the 1961 Green Acres Program and continued acquisition for the Delaware Water Gap National Recreation Area, over 120,000 acres of land will be added to the 1970 land supply to boost the total recreation land in the State to 774,163 acres. (See Tables 2 and 3.)

Although the various levels of government in New Jersey combined have identified 129,705 acres of land as possessing the potential of being developed for recreational use, the net gain in the State's land supply resulting from the proposed acquisition programs will actually amount to 122,299 acres. (See Table 2.) The reason for this is that the federal program includes 7,406 acres of state land which is presently dedicated to recreational use that is expected to be transferred to the National Park Service for the Delaware Water Gap National Recreation Area and the Gateway National Recreation Area.

The state level proposes to undertake the largest acquisition program with 72,819 acres identified for future purchase. Under present plans, recreation lands administered by the Federal Government in New Jersey will increase by 38,771 acres. At the local levels, municipalities propose to acquire 10,874 acres while counties plan to purchase 7,241 acres.

Largely because of the acquisition programmed by the Federal Government to complete the Delaware Water Gap National Recreation Area, the land acreage proposed for acquisition in the Northwest Region (49,920 acres) is the largest regional total. Sizable land acquisition programs are also scheduled in the South Shore (24,321 acres), North Shore (16,919 acres), and North Central (10,851 acres) regions.

When the proposed acquisitions are completed, over 47% of New Jersey's total recreation land of 774,163 acres will be located in the South Shore and Northwest regions. The Northeast and the Central Corridor regions will have the lowest regional totals with 40,690 acres and 36,748 acres, respectively.

TABLE 2: PROPOSED RECREATION LAND (acres)

Region	Municipal	County	State	Federal	Total
Northwest	1,283	1,413	16,424	30,800	49,920
North Central	2,992	115	7,552	192	10,146
Northeast	696	1,952	714	0	3,362
Central Corridor	1,755	1,273	4,754	0	7,782
North Shore	2,474	1,537	8,618	4,832	16,919
Southwest	723	0	8,143	0	8,866
South Shore	838	80	22,821	582	24,321
Delaware Bay	113	871	3,793	2,365	7,142
State Totals	10,874	7,241	72,819	38,771	129,705

TABLE 3: FUTURE TOTAL RECREATION LAND (acres)

Region	Municipal	County	State	Federal	Interstate	Private	Total
Northwest	1,630	1,417	70,070[1]	47,168	0	64,943	185,228
North Central	4,597	4,908	31,621	7,048	0	38,238	86,412
Northeast	6,071	18,310	2,036	16	2,430	11,827	40,690
Central Corridor	5,906	8,850	10,149	0	0	11,643	36,748
North Shore	3,784	3,646	59,054[2]	5,565	0	8,418	80,507
Southwest	2,107	4,030	75,575	0	0	18,094	99,806
South Shore	1,948	1,629	136,154	21,213	0	19,886	180,830
Delaware Bay	2,018	1,036	52,556	3,000	0	5,332	63,942
State Totals	28,061	43,826	437,255	84,010	2,430	178,581	774,163

[1]The expected transfer of Worthington State Forest (5,824 acres) to the National Park Service and the anticipated Corps of Engineers purchases (totaling approximately 787 acres) of the Walpack Fish and Wildlife Management Area and a section of the Flatbrook Fish and Wildlife Management Area for the Delaware Water Gap National Recreation Area are reflected in this figure.

[2]The expected transfer to the Department of the Interior of real property and rights totaling 795 acres for the Gateway National Recreation Area is reflected in this figure.

FEDERAL RECREATION SUPPLY

EXISTING

The Federal Government presently holds title to 45,239 acres of land in New Jersey that are predominately used for recreation. Of this total, 26,421 acres are administered by the Fish and Wildlife Service, 17,751 acres by the National Park Service, and 1,067 acres by the U.S. Army Corps of Engineers and the U.S. Coast Guard. (Appendix C gives a detailed listing of all federal recreation areas in New Jersey.) Table 4 shows existing and proposed federal recreation lands by region and Table 5 shows developed recreation facilities at federal and interstate areas by region.

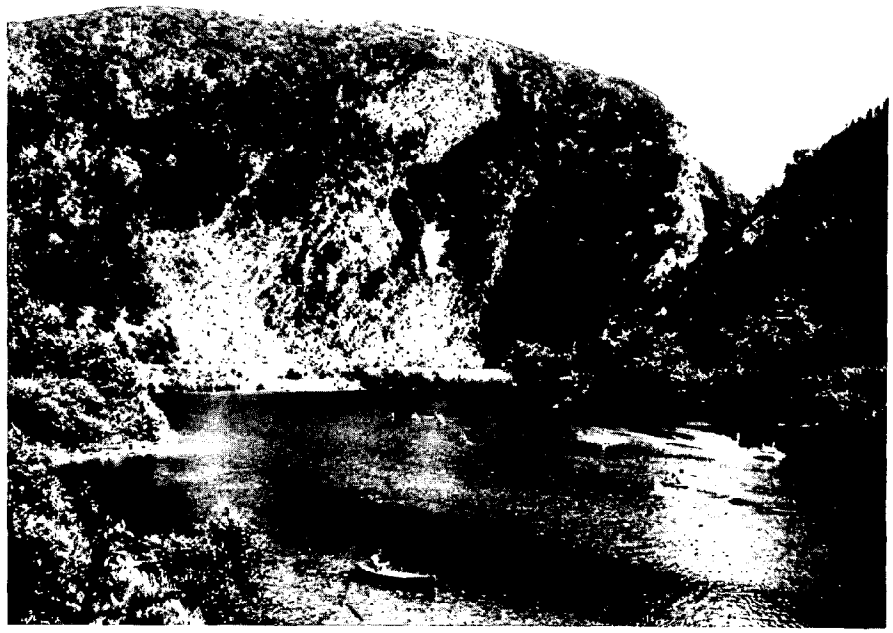
The National Park Service

The National Park Service administers three areas in New Jersey: the Morristown National Historic Park in Morris County, the Edison National Historic Site in Essex County and the Delaware Water Gap National Recreation Area in Sussex and Warren counties. At the first two areas, the National Park Service has developed primarily historical interpretive facilities; however, at Morristown, recreation facilities including hiking and equestrian trails and picnicking areas are also provided. At the Delaware Water Gap National Recreation Area, a wide variety of outdoor recreation activities may be engaged in by park visitors. These activities include hunting, swimming, canoeing, boating, fishing, ice skating, hiking, camping, and picnicking. Annual visitation to National Park Service areas in 1970 amounted to 1,272,200 with the Delaware Water Gap National Recreation Area accounting for 815,200 visits.

The Fish and Wildlife Service

The Fish and Wildlife Service owns four national wildlife refuges in the State, one of which is administered by the New Jersey Department of Environmental Protection. Since these areas are maintained primarily for conservation purposes, only those activities that are compatible with each site's resources are permitted. Hunting is prohibited at all areas except the state administered Killcohook National Wildlife Refuge and a 5,000 acre section of the Brigantine National Wildlife Refuge. The 1970 attendance figures for the Great Swamp National Wildlife Refuge, the Barnegat National Wildlife Refuge, and the Brigantine National Wildlife Refuge were 141,000, 27,248, and 164,557, respectively.

Delaware Water Gap



The United States Army Corps of Engineers and The Coast Guard

These agencies administer several small sites in the North Shore and South Shore regions. The Corps maintains three areas: the Bay Head-Manasquan Canal, the Manasquan River Channel, and the Cape May Canal, all of which are used by

TABLE 4: EXISTING AND PROPOSED FEDERAL RECREATION LAND (acres)

Region	1970				PROPOSED			
	National Park Service	Fish & Wildlife Service	Other Federal Agencies	Total Existing Federal Land	National Park Service	Fish & Wildlife Service	Total Proposed Federal Land	Total Future Federal Land
Northwest	16,368	0	0	16,368	27,800	3,000	30,800	47,168
North Central	1,367	5,489	0	6,856	3	189	192	7,048
Northeast	15	0	0	16	0	0	0	16
Central Corridor	0	0	0	0	0	0	0	0
North Shore	0	652	81	733	0	4,832	4,832	5,565
Southwest	0	0	0	0	0	0	0	0
South Shore	0	19,645	986	20,631	0	582	582	21,213
Delaware Bay	0	635	0	635	0	2,365	2,365	3,000
State Totals	17,751	26,421	1,067	45,239	27,803	10,968	38,771	84,010

boating enthusiasts. The Coast Guard maintains several lighthouse stations which are mainly of historic interest to tourists.

PROPOSED

When acquisition is completed for the Delaware Water Gap National Recreational Area, the recreation area will encompass over 70,000 acres of land in New Jersey and Pennsylvania. At the present time, 16,400 acres of the proposed 44,210 acre New Jersey section have been acquired. In view of the uncertainty of the future of the reservoir and the limited acquisition which has taken place, very little recreation development has occurred.

Current plans call for the DWGNRA to stretch on both sides of the proposed 37 mile lake just below the scenic Delaware Water Gap to above Milford, Pennsylvania. The 12,425 acre reservoir which will be formed by a dam at the northern tip of Tocks Island will be used for flood control, water supply, hydroelectric power, and recreational purposes.

According to the master plan for the DWGNRA, the reservoir will be the focal point of recreation development with facilities for boating, fishing and swimming provided along its banks. However, if the reservoir is deleted from the project, the DWGNRA will still become a reality but with a much more limited variety of activity opportunities. Provisions will still be made for hiking, horseback riding, picnicking, and nature and historic interpretation.

The DWGNRA, little more than one hour's drive from New York City and Philadelphia, will serve 15% of our nation's population who live within 100 miles of the site. An annual visitation, in line with the environmental constraints of the valley, approaching four million people is forecasted for the recreation area when it is completed.

Congress just recently authorized the establishment of the Gateway National Recreation Area in the center of the northern New Jersey-New York urban complex. The 25,000 acre project, composed of a number of separate recreation units in New

TABLE 5: FEDERAL RECREATION AREAS AND PALISADES INTERSTATE AREA DEVELOPED RECREATIONAL FACILITIES 1970

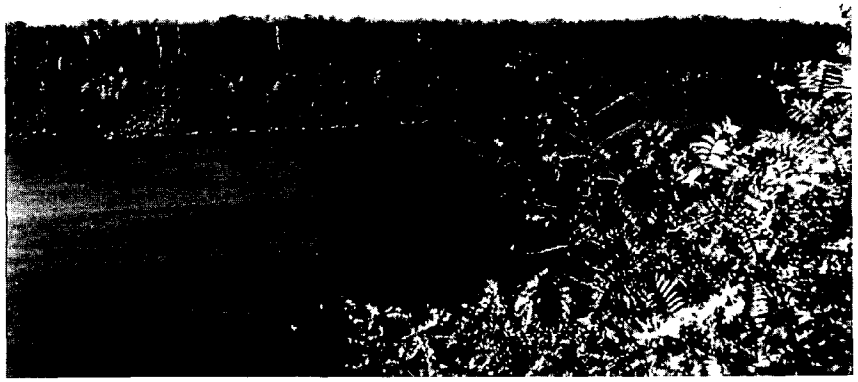
Facilities	FEDERAL RECREATION AREAS						INTERSTATE PARK	
	Northwest	North Central	North Shore	South Shore	Delaware Bay	State Total	Northeast	State Total
Swimming								
Permanent Pools	1					1		
Ft. of Shoreline	250					250		
Acres of Beach								
Boating								
Areas							1	1
Ramps	1			1		2	252	252
Berths								
Water Acreage			2,000	2,200		4,200		
Fishing								
No. of Fac.								
Water Acres	240		2,000	2,200		4,440		
Mi. of Shoreline	29.7	0.7		0.25		30.65	12	12
Camping								
Family Sites	30					30		
Hiking								
Miles of Trails	31	23.9				54.9	33	33
Bicycling								
Miles of Trails								
Horseback Riding								
Miles of Trails	4.4	8.4				12.8		
Hunting								
Acres	7,570			5,000	635	13,205		
Picnicking								
Acres								
Tables	50	24				74	500	500
Ice Skating – Natural Areas								
No. of Sites								
Acres	6					6	1	1
Ice Skating – Artificial								
Acres								
Snow Skiing								
Acres								
Outdoor Games & Sports								
Playgrounds								
Open Playfields	10	5				15	1	1
Game Courts								
Golf – 18 holes								
Golf – 9 holes								
Golf – Par 3								

Jersey and New York in the vicinity of the Lower New York Bay will feature two high use water-oriented recreation complexes: one on Sandy Hook peninsula in New Jersey and another at Breezy Point in New York. The 1,700 acre Sandy Hook unit, which will have a daily capacity of about 50,000 people, will serve the densely populated northeastern section of New Jersey.

INTERSTATE RECREATION AREA

The Palisades Interstate Park is a unique area in New Jersey, extending 13 miles along the Hudson River from Fort Lee in Bergen County to the New York State line. Regarded as one of the more scenic features of the northeastern part of the United States, the lands were originally acquired to preserve the skyline of the Palisades.

This park totals 2,430 acres of scenic views, picnicking and hiking trails which attracted 1,854,583 visitors in 1970. It is maintained by the Palisades Interstate Park Commission, a bi-state agency established by law in 1900 when the states of New York and New Jersey joined together to preserve the high bluff along the west shore of the Hudson River. Just recently, the Palisades Shore Trail and Palisades Long Path were designated as National Recreation Trails.



High Point

STATE RECREATION SUPPLY

EXISTING

Three divisions within the New Jersey Department of Environmental Protection are responsible for the administration of state owned recreation areas. The Division of Parks and Forestry maintains the state parks, forests, natural areas, recreation areas, marinas and historic sites and, under the provision of statutes and approval of the Division of Water Resources, operates two reservoirs as state recreation areas; and the Division of Fish, Game and Shellfisheries administers the state fish and wildlife management areas. State parks and forests are generally developed for recreation while state fish and wildlife management areas remain relatively undisturbed expanses of land suitable for hunting, fishing, and nature interpretation. Although state reservoirs, dams, operational structures and related appurtenances are constructed, operated and maintained by the Division of Water Resources for water supply purposes, much of their water surface area and the lands bordering them are available and used for recreation.

Over 5,500,000 people visit New Jersey's state parks, forests, and historic sites annually. The North Shore Region primarily due to the two shore state parks—Island Beach and Sandy Hook State Parks—accounts for 34% (1,872,820 visitors) of the total attendance at state recreation facilities. Three other regions receiving high proportions of the state facility visitation—Northwest, South Shore, and North Central—attract collectively 2,565,756 visitors or 46% of the state visitation. Yet these four regions, which attract 80% of annual attendance, have only 27% of the State's population, indicating that a high proportion of visitation originates outside of the regions.

The various state recreation areas total 371,842 acres. A high proportion of this acreage, 113,333 acres or 30% of the total, is situated in the South Shore Region. Ranking second, the Southwest Region has 67,432 acres or 18% and, ranking third, the Northwest Region has 60,257 acres or 16%. (See Table 6.)

State Parks

New Jersey's state parks have been established to provide facilities for healthful outdoor recreation, to preserve the native flora and fauna in their natural conditions, and to preserve areas of outstanding historic significance. Nearly all of the parks have been set aside as wildlife sanctuaries where hunting is prohibited.

The majority of the 39 state parks totaling 47,009 acres are developed to some degree for recreation. (For acreage and attendance figures for each park see Appendix D.) The major activities at most state parks are picnicking, fishing, swimming, camping, hiking, driving for pleasure, and playing outdoor games. In Table 8, the developed recreation facilities provided in state parks are reported by region. A large portion of the state park acreage is contained in the Northwest Region. The state parks in this region, totaling 21,502 acres or 46% of the state park acreage, have intensive development and accommodate over 800,000 visitors annually. However, the most intensively used state parks are Island Beach and Sandy Hook State Parks in the North Shore Region. These two shore water-oriented parks combined receive over 1,350,000 visitors annually.

TABLE 6: EXISTING STATE RECREATION LAND 1971 (acres)

Region	Parks	Forests	Fish and Wildlife Management Areas	Natural Areas	Historic Sites	Recreation Areas	Marinas	Reservoir Sites	Misc.[1] Areas	Total
Northwest	21,502	21,023	9,831	446	1	6,208	0	0	1,246	60,257
North Central	7,940	4,150	5,285	294	0	0	0	0	6,400	24,069
Northeast	1,299	0	0	0	9	0	0	0	14	1,322
Central Corridor	3,025	0	135	52	15	0	0	754	1,414	5,395
North Shore	8,530	9,309	33,159	108	7	0	23	15	120	51,271
Southwest	2,794	60,318	4,310	0	10	0	0	0	0	67,432
South Shore	690	79,189	30,261	3,066	4	0	28	0	95	113,333
Delaware Bay	1,229	1,523	45,897	100	1	0	15	0	0	48,763
State Totals	47,009	175,512	128,878	4,066	47	6,208	64	769	9,289	371,842

[1]Of the Northwest and North Central regional totals, 480 and 6400 acres, respectively, are under conservation easements.

TABLE 7: PROPOSED AND FUTURE STATE RECREATION LAND (acres)

Region	PROPOSED RECREATION LAND GREEN ACRES PROGRAMS 1961 Bond Issue	1971[1] Bond Issue	Total Green Acres	Water Resources Fund	Total Proposed Land	Total[2] Future State Rec. Land
Northwest	225	15,229	15,454	970	16,424	70,070*
North Central	457	5,045	5,502	2,050	7,552	31,621
Northeast	14	700	714	0	714	2,036
Central Corridor	20	2,388	2,408	2,346	4,754	10,149
North Shore	589	6,039	6,628	1,990	8,618	59,094**
Southwest	354	7,789	8,143	0	8,143	75,575
South Shore	525	22,296	22,821	0	22,821	136,154
Delaware Bay	470	3,323	3,793	0	3,793	52,556
State Totals	2,654	62,809	65,463	7,356	72,819	437,255

[1]Represents estimated acreage which will be acquired under the 1971 Green Acres Bond Issue.

[2]Represents the sum of existing State recreation land and the net gain of supply achieved through the State's proposed acquisition program.

*The expected transfer of Worthington State Forest (5,824 acres) to the National Park Service and the anticipated Corps of Engineers' purchases (totaling approximately 787 acres) of the Walpack Fish and Wildlife Management Area, and a section of the Flatbrook Fish and Wildlife Management Area for the Delaware Water Gap National Recreation Area are reflected in this figure.

**The expected transfer to the Department of Interior of real property and rights totaling 795 acres for the Gateway National Recreation Area is reflected in this figure.

State Forests

There are 10 New Jersey state forests totaling 175,512 acres. The state forests are not generally as developed as state parks and are oriented more toward the backwoods type of outdoor recreation such as hunting, camping, fishing, picnicking and hiking. Besides having recreational facilities, the state forests serve as wildlife and plant life conservation areas, as well as providing a visual or aesthetic break in the developed sprawl of our suburban countryside and a natural retreat for the urbanite. (For acreages and attendance figures of the state forests refer to Appendix E, and for the regional breakdown of state forest recreation facilities refer to Table 9.)

State forests occur in all but two regions, the Northeast and Central Corridor. About 80% (139,507 acres) of the state forest lands are located in the South Shore and Southwest regions. Within these regions are located the Wharton Tract, the largest state forest in New Jersey comprising 99,600 acres, and the major portion (17,704 acres) of the second largest state forest, Lebanon State Forest, totaling 27,013 acres.

State Recreation Areas

State recreation areas offer opportunities for a wide variety of outdoor activities and are characteristically more intensively developed for recreation than other state areas. The three existing state recreation areas, totaling 6,208 acres, are all located in the Northwest Region. (See Appendix F for acreage and attendance figures for each area.) Two of these areas, Round Valley and Spruce Run Recreation Areas, utilize the recreation potential of state reservoirs by providing facilities for water-oriented activities. Presently, activities at these sites

TABLE 8: STATE PARKS
DEVELOPED RECREATIONAL FACILITIES
1970

Facilities	Northwest	North Central	Northeast	Central Corridor	North Shore	Southwest	South Shore	Delaware Bay	State Total
Swimming									
Permanent Pools									
Ft. of Shoreline		600							600
Acres of Beach	6	5.5		3	37			4	55.5
Boating									
Areas									
Ramps									
Berths									
Water Acreage	1,303	157						90	1,550
Fishing									
No. of Fac.									
Water Acres	1,303	240	35	9				90	1,677
Mi. of Shoreline	4.5	4.6			23		2.5	.4	35
Camping									
Family Sites	190			53	57			57	357
Hiking									
Miles of Trails	23.4	31		9.7	13.1	1.5		9	87.7
Bicycling									
Miles of Trails									
Horseback Riding									
Miles of Trails	20			5.0	5				30
Hunting									
Acres	7,850	3,551	905			550			13,156
Picnicking									
Acres									
Tables	564	725		525	152			192	2,158
Ice Skating									
Natural Areas									
No. of Sites									
Acres	15	24						6	45
Ice Skating									
Artificial									
Acres									
Snow Skiing									
Acres									
Outdoor Games & Sports									
Playgrounds	7	5		4	1			2	19
Open Playfields	6	3		8	1			8	26
Game Courts									
Golf – 18 holes									
Golf – 9 holes									
Golf – Par 3									

TABLE 9: STATE FORESTS
DEVELOPED RECREATIONAL FACILITIES
1970

Facilities	Northwest	North Central	Northeast	Central Corridor	North Shore	Southwest	South Shore	Delaware Bay	State Total
Swimming									
Permanent Pools									
Ft. of Shoreline									
Acres of Beach	3					2	3		8
Boating									
Areas									
Ramps	2								2
Berths									
Water Acreage	10						215		225
Fishing									
No. of Fac.									
Water Acres	143						158		301
Mi. of Shoreline	5	1					1		7
Camping									
Family Sites	198					105	362		665
Hiking									
Miles of Trails	40.3	19.8			10	158.5	188.9		417.5
Bicycling									
Miles of Trails									
Horseback Riding									
Miles of Trails	38				10	157	188		393
Hunting									
Acres	13,340	4,150			9,309	58,130	76,466	1,523	162,918
Picnicking									
Acres									
Tables	108					95	439		642
Ice Skating									
Natural Areas									
No. of Sites									
Acres	15					5			20
Ice Skating									
Artificial									
Acres									
Snow Skiing									
Acres									
Outdoor Games and Sports									
Playgrounds	3						4		7
Open Playfields	4						4		8
Game Courts									
Golf-18 holes									
Golf-9 holes									
Golf-Par 3									

are limited to boating, waterfowl hunting and fishing, but within the very near future facility development for swimming, hiking, picnicking and camping will be completed. (See Table 10.)

State Natural Areas

To date, thirteen designated state natural areas totaling 4,066 acres have been established to preserve ecologically significant or unique areas in their natural state. In addition, approximately 1,000 acres within state parks have been set aside as dedicated state natural areas. Since development has been kept to a minimum to avoid damaging or altering the natural character of these sensitive areas, hiking and nature interpretation are the primary activities engaged in on state natural areas. Most of the designated state natural areas land acreage is located in the South Shore Region (3,066 acres). (Refer to Appendix G for the regional locations and acreages of the state natural areas.)

State Marinas

There are presently four state marinas operated by the Division of Parks and Forestry. Two marinas are located in the North Shore Region—Forked River (105 berths) in Ocean County and Leonardo (200 berths) in Monmouth County; one in the South Shore Region—Atlantic City (384 berths) in Atlantic County; and one in the Delaware Bay Region—Fortescue (124 berths) in Cumberland County. (Refer to Table 10.) These facilities total 64 acres with the Atlantic City Marina being the largest at 28 acres. (See Appendix H.)

State Historic Sites

There are presently 26 state historic sites in New Jersey. In addition, there are eight historic areas including Allaire Village and Batsto Village located in state parks or forests. (See Appendix I for list of state historic sites.)

The 26 state historic sites which consist mostly of historic buildings receive over 135,000 visitors annually. These sites total 47 acres and are generally about two acres or less in size.

Batsto

TABLE 10: STATE RECREATION AREAS, MARINAS, AND MISCELLANEOUS AREAS DEVELOPED RECREATIONAL FACILITIES/ 1970

	STATE RECREATION AREAS		STATE MARINAS				STATE MISCELLANEOUS AREAS			
Facilities	Northwest	State Total	North Shore	South Shore	Delaware Bay	State Total	Northwest	Central Corridor	North Shore	State Total
Swimming										
Permanent Pools										
Ft. of Shoreline										
Acres of Beach										
Boating										
Areas	1	1								
Ramps										
Berths			305	384	124	813				
Water Acreage	1,020	1,020					144	296		440
Fishing										
No. of Fac.										
Water Acres	3,320	3,320					144			144
Mi. of Shoreline	2	2								
Camping										
Family Sites	50	50								
Hiking										
Miles of Trails								25		25
Bicycling										
Miles of Trails										
Horseback Riding										
Miles of Trails										
Hunting										
Acres	5,000	5,000							115	115
Picnicking										
Acres										
Tables	35	35								
Ice Skating										
Natural Areas										
No. of Sites										
Acres										
Ice Skating										
Artificial										
Acres										
Snow Skiing										
Acres										
Outdoor Games and Sports										
Playgrounds										
Open Playfields										
Game Courts										
Golf-18 holes										
Golf-9holes										
Golf-Par 3										

Bass River State Forest

TABLE 11: STATE FISH AND WILDLIFE MANAGEMENT AREAS DEVELOPED RECREATIONAL FACILITIES/ 1970

Facilities	Northwest	North Central	Northeast	Central Corridor	North Shore	Southwest	South Shore	Delaware Bay	State Total
Swimming									
Permanent Pools									
Ft. of Shoreline									
Acres of Beach					2.0				2.0
Boating									
Areas									
Ramps							2	2	4
Berths									
Water Acreage	30	40		18	446	42	2,785	928	4,289
Fishing									
No. of Fac.									
Water Acres	223	60		18	543	37	3,278	1,161	5,320
Mi. of Shoreline	12.5	5			15	20.5		5	58
Camping									
Family Sites					6				6
Hiking									
Miles of Trails	15	2.5		1	73.5	5.7	21	16	134.7
Bicycling									
Miles of Trails									
Horseback Riding									
Miles of Trails	18	1.5			20.5	2.0	15.5	10	67.5
Hunting									
Acres	8,215	5,163			31,942	4,267	29,818	45,693	125,118
Picnicking									
Acres									
Tables					15				15
Ice Skating									
Natural Areas									
No. of Sites									
Acres									
Ice Skating									
Artificial									
Acres									
Snow Skiing									
Acres									
Outdoor Games & Sports									
Playgrounds									
Open Playfields									
Game Courts									
Golf – 18 holes									
Golf – 9 holes									
Golf – Par 3									

State Fish and Wildlife Management Areas

The 60 state fish and wildlife management areas which total 128,878 acres occur in all but one region, the Northeast Region. Most of the areas are natural and development is restricted to the minimum of physical, sanitary and safety conditions essential for visitors. Hunting and fishing are the primary outdoor activities provided; however, some of the areas also provide limited picnicking and boating facilities. (See Table 11.)

Most of the state fish and wildlife management areas are located in the three regions bordering on the Atlantic Ocean and the Delaware Bay. The Delaware Bay Region contains 45,897 acres, the North Shore 33,159 acres, and the South Shore 30,261 acres. Together they represent 85% of the total fish and wildlife acreage in the State. (Refer to Appendix J for a listing of the state fish and wildlife management areas. Attendance figures are not kept by the Division of Fish, Game and Shellfisheries, and, therefore, annual visitation cannot be determined.)

Other State Areas

At present, there are two state reservoir sites in the acquisition stage: Six Mile Run (754 acres have been acquired) in the Central Corridor Region and Manasquan (15 acres to date) in the North Shore Region. Future plans envision using the reservoirs for recreational purposes along with their water supply functions. (See Appendix K.)

The State presently owns 9,289 acres of recreation land that is not classified. The present Delaware and Raritan Canal, operated, maintained and administered by the Division of Water Resources as a state owned water supply system, together with its feeder flows about 60 miles through the Northwest and Central Corridor regions and represents a most valuable resource in terms of recreational use. The canal proper is used for fishing, boating, and canoeing, while the towpath running along the canal bank is used for hiking, bicycling, and horseback riding. (See Table 10 for facilities and Appendix L for acreage figures.)

PROPOSED

The State's programmed acquisitions, totaling 72,819 acres, will expand existing recreation areas and establish new sites. (See Table 7.) On a regional basis, the South Shore Region has 22,821 acres programmed and the Northwest Region has 16,424 acres planned; together these regions account for nearly 54% of the total state proposed acquisitions. In terms of future recreation land supply, the State will provide 437,255 acres or 56% of the total.

At many existing recreation areas, these additions will enable the State to begin or continue recreation facility development. While at other areas, the purchase of inholdings and certain lands adjoining the existing property will prevent future development which would detract from the scenic or natural value of the areas.

Under the Green Acres Programs (1961 and 1971 Bond Issues), the State will acquire 65,463 acres of potential recreation land. State acquisition is programmed for all eight planning regions; however, three regions combined will contain over 70% of the total acreage. These regions are the South Shore with 22,821 acres, the Northwest with 15,454 acres and the Southwest with 8,143 acres.

Through the funds authorized by the Water Resources Bond Act of 1969, the State plans to purchase 7,356 additional acres for five reservoir sites. A major portion of the acreage will be acquired in the Central Corridor Region to complete the acquisition of the proposed Six Mile Run Reservoir.

Action on two additional authorized reservoir sites, which would add 6,660 acres to the open space land supplies of the North Central, Northeast and Central Corridor regions, has been deferred indefinitely. For this reason, the acreages of these sites have not been included in the future recreation land total.

Silas Condict Park, Morris County

COUNTY RECREATION SUPPLY

County parks are generally much larger than municipal parks and, consequently, offer a more naturalistic background for recreation. Although commonly providing facilities similar to those found in municipal parks such as game courts, sports fields, and playgrounds, county parks frequently offer opportunities for participation in activities which require larger areas or more natural settings than most municipal sites possess such as fishing, boating, golf, camping, and horseback riding.

In 1970, an inventory of county provided outdoor recreation facilities and areas was conducted by mailed questionnaires. All of the State's twenty-one counties responded even though several reported no operating park systems. The information obtained through this inventory serves as the data source in the following discussion of county outdoor recreation facilities and open space land.

EXISTING

At present, seventeen of New Jersey's twenty-one counties operate county park systems totaling 36,585 acres. These systems range in size from 4 acres in Warren County and 9 acres in Atlantic County to 5,319 acres in Essex County. The vast majority of the county acreage (94% or 34,394 acres) is located in the eleven most densely populated counties in New Jersey. Except for Hudson County, each of these counties provides at least 1,500 acres of park land. The five highly urbanized counties comprising the Northeast Region provide 16,348 acres or 45% of the total county land statewide. Cape May County is the only rural county providing more than 1,000 acres of county park land. (Refer to Table 12.)

County park systems vary in their degree of recreation development, but in general they provide facilities for games and sports, picnicking, hiking, ice skating, boating and fishing. In addition, most county systems include at least one golf course and many systems offer special facilities such as children's zoos and band shells. Several counties offer swimming facilities, family and group camping facilities, and snow skiing areas. (See Table 13.)

In general, county parks located in the highly urbanized Northeast Region are more intensively developed for recreation than those situated in the less densely populated regions of the State. The majority of the developed county recreation facilities for outdoor games and sports are provided by the five counties in the Northeast Region.

PROPOSED

Fourteen counties have identified 7,241 acres as potential county recreation land and have made application for financial assistance under the Green Acres Programs to acquire this acreage. When acquisition of the potential county park land is completed, the county park land total will be increased by 20% to 43,826 acres. With this addition, fourteen counties will each provide over 1,000 acres of park land and ten of these counties will each provide over 2,000 acres.

The most significant county park additions will be made by Hunterdon (1,413 acres), Passaic (1,027 acres), Somerset

TABLE 12: EXISTING AND PROPOSED COUNTY RECREATION LAND (acres)

Region/County	Existing Recreation Land 1970	Proposed Recreation Land Green Acres Programs 1961 Bond Issue	1971[1] Bond Issue	Total Proposed Land	Total Future County Recreation Land
Northwest					
Hunterdon			1,413	1,413	1,413
Sussex					
Warren	4				4
Regional Total	4		1,413	1,413	1,417
North Central					
Morris	4,500		115	115	4,615
Passaic (Part of)	293				293
Regional Total	4,793		115	115	4,908
Northeast					
Bergen	4,010		672	672	4,682
Essex	5,319				5,319
Hudson	612				612
Passaic (Part of)	1,207		1,027	1,027	2,234
Union	5,210	2	251	253	5,463
Regional Total	16,358	2	1,950	1,952	18,310
Central Corridor					
Mercer	2,924				2,924
Middlesex	2,500	11	266	277	2,777
Somerset	2,153	10	986	996	3,149
Regional Total	7,577	21	1,252	1,273	8,850
North Shore					
Monmouth	1,666		922	922	2,588
Ocean (Part of)	443		615	615	1,058
Regional Total	2,109		1,537	1,537	3,646
Southwest					
Burlington (Part of)					
Camden	4,000				4,000
Gloucester	30				30
Regional Total	4,030		0	0	4,030
South Shore					
Atlantic	9		80	80	89
Burlington (Part of)					
Cape May	1,445				1,445
Ocean (Part of)	95				95
Regional Total	1,549		80	80	1,629
Delaware Bay					
Cumberland	165		871	871	1,036
Salem					
Regional Total	165		871	871	1,036
State Totals	36,585	23	7,218	7,241	43,826

[1]Represents estimated acreage which will be acquired under the 1971 Green Acres Bond Issue.

TABLE 13: COUNTY DEVELOPED RECREATIONAL FACILITIES 1970

Facilities	Northwest	North Central	Northeast	Central Corridor	North Shore	Southwest	South Shore	Delaware Bay	State Total
Swimming									
Permanent Pools			3			4			7
Ft. of Shoreline			700	400	3,450	1,200			5,750
Acres of Beach			7						7
Boating									
Areas			1			4			5
Ramps		2	3	5	1	1			12
Berths						1			1
Water Acreage									
Fishing									
No. of Fac.									
Water Acres		20	309	10	70				409
Mi. of Shoreline		1	25	4		50			80
Camping									
Family Sites		12	19		43				74
Hiking									
Miles of Trails		12	82.5	50	40	360			544.5
Bicycling									
Miles of Trails			2						2
Horseback Riding									
Miles of Trails		1	47	7					55
Hunting									
Acres									
Picnicking									
Acres									
Tables		100	3,641	765	752	40	50		5,348
Ice Skating									
Natural Areas									
No. of Sites									
Acres		10	178	29	97	1,200	5		1,519
Ice Skating									
Artificial									
Acres			1.0						1.0
Snow Skiing									
Acres			28	27	2				57
Outdoor Games & Sports									
Playgrounds		1	97	6	2	3	1		110
Open Playfields		4	212	27	10	5	1		259
Game Courts			447	83	20	26	11		587
Golf – 18 holes		1	9	5	1	1			17
Golf – 9 holes		1	1	1					3
Golf – Par 3			2	1		9			12

(996 acres), and Monmouth (922 acres) counties. On a regional basis, county park land will be increased by 1,952 acres in the Northeast Region, 1,537 acres in the North Shore Region and 1,413 acres in the Northwest Region.

In the future, county park land will still be centered in the more urbanized regions—the North Central, Northeast, Central Corridor and Southwest. These four regions will account for 80% (36,098 acres) of the total county park land. The Northeast Region will still rank first in total county park land with 18,310 acres; however, the region's proportion of the total future county recreation land will decline from the present 45% to 42%. The Central Corridor Region will rank second with 8,850 county park acres and the North Central will rank third with 4,908 acres.

Van Saun Park, Bergen County

MUNICIPAL RECREATION SUPPLY

During the latter portion of 1968, a municipal outdoor recreation facility inventory was conducted by sending questionnaires to each of the 567 municipalities in New Jersey. A series of three questionnaires resulted in 85.7% (486) of the municipalities responding. Since the majority of the municipalities not responding were small rural communities that provide few recreation facilities, the results of the inventory were considered to represent about 95% of the municipally provided outdoor recreation facilities. By incorporating the results of a 1971 outdoor recreation facility inventory of municipalities with populations over 25,000 or with population densities greater than 5,000 people per square mile, and referring to municipal master plans and other materials available, the 1968 inventory was updated to 1970 for use in this report.

EXISTING

In the eight regions, municipally provided recreation land totaled 17,187 acres. (See Table 14.) In the Northeast Region the municipalities provide the highest regional recreation land total, 5,375 acres; however, this land accounts for only 31% of the total recreation land provided at the municipal level, while 47% of the State's population resides in this region. The least amount of municipal park land (347 acres) is found in the Northwest Region. The proximity of state parks and forests and the rural nature of the region probably account for this low figure.

Municipalities in the ocean fronting and the lake regions have developed extensive water-oriented facilities. There are 449,342 feet of municipally owned lake or ocean shoreline developed for swimming. Of this total, 62% is provided by municipalities in the South Shore Region and 23% in the North Shore Region. Municipalities in the two highly urbanized regions, the Northeast and Central Corridor, provide 54 and 18 swimming pools, respectively, or, combined, 64% of the total pools provided by municipalities in the State.

There are 3,941 municipal boating berths in the State. The majority (3,869) are in the North Shore and South Shore regions. In the remaining six regions, municipalities provide only 72 berths. Municipalities provide 74% (649 miles) of New Jersey's fishing shoreline. The two shore regions supply 47% of this total municipal shoreline.

The majority of New Jersey's facilities for games and sports are provided by municipalities. There are 1,485 municipal playgrounds, 3,045 playfields and 3,044 game courts. In addition, municipalities operate five 18-hole regulation golf

courses, three regulation 9-hole courses, and three Par 3 courses. On a regional basis, the Northeast Region has the greatest number of municipal game and sports facilities and the Central Corridor Region ranks second in the number of facilities.

Other recreation facilities provided by municipalities include picnic sites and ice skating. Statewide, municipalities provide 3,077 picnic tables and 2,638 acres of lakes for ice skating. Nearly half of the municipally provided picnic tables are located in the Northeast Region. Municipalities in the Delaware Bay Region provide 1,574 acres of water for ice skating. (See Table 15.)

PROPOSED

The municipalities of New Jersey have submitted applications for financial assistance under the Green Acres Programs for the acquisition of 10,874 acres of recreation land. In the North Central Region 2,992 acres are proposed for acquisition by municipalities, in the North Shore Region 2,474 acres, in the Central Corridor Region 1,755 acres, and in the Northwest Region 1,283 acres. In the Delaware Bay Region municipalities have proposed acquiring only 113 acres. (Refer to Table 14.)

TABLE 14: EXISTING AND PROPOSED MUNICIPAL RECREATION LAND (acres)

	Existing Recreation Land 1970	Proposed Recreation Land Green Acres Programs 1961 Bond Issue	1971[1] Bond Issue	Total Proposed Land	Total Future Municipal Rec. Land
Northwest	347		1,283	1,283	1,630
North Central	1,605	11	2,981	2,992	4,597
Northeast	5,375	6	690	696	6,071
Central Corridor	4,151	194	1,561	1,755	5,906
North Shore	1,310	217	2,257	2,474	3,784
Southwest	1,384	49	674	723	2,107
South Shore	1,110	11	827	838	1,948
Delaware Bay	1,905		113	113	2,018
State Total	17,187	488	10,386	10,874	28,061

[1]Represents estimated acreage which will be acquired under the 1971 Green Acres Bond Issue.

TABLE 15: MUNICIPAL DEVELOPED RECREATIONAL FACILITIES 1970

Facilities	Northwest	North Central	Northeast	Central Corridor	North Shore	Southwest	South Shore	Delaware Bay	State Total
Swimming									
Permanent Pools	5	3	54	18	6	11			97
Ft. of Shoreline	1,918	16,659	2,450	8,552	104,427	18,680	278,440	18,216	449,342
Acres of Beach									
Boating									
Areas	11	2	4	30	15	12	10	3	87
Ramps	3	2	3	9	32		33	9	91
Berths			20		2,836	7	1,233	45	3,941
Water Acreage						7			7
Fishing									
No. of Fac.									
Water Acres									
Mi. of Shoreline	35	132	46	21	143	79	164	27	649
Camping									
Family Sites									
Hiking									
Miles of Trails	2	2	5	4	110	7	8	1	139
Bicycling									
Miles of Trails		4	4	3	6	1	28	1	47
Horseback Riding									
Miles of Trails			1		15		12		28
Hunting									
Acres									
Picnicking									
Acres			13						13
Tables	151	52	1,450	470	339	178	276	161	3,077
Ice Skating									
Natural Areas									
No. of Sites									
Acres	33	243	259	277	40	82	130	1,574	2,638
Ice Skating									
Artificial									
Acres			.3						.3
Snow Skiing									
Acres									
Outdoor Games & Sports									
Playgrounds	73	83	618	281	121	167	86	36	1,485
Open Playfields	90	225	1,204	568	268	450	143	77	3,045
Game Courts	66	231	1,315	527	217	415	202	71	3,044
Golf – 18 holes			2	1	2				5
Golf – 9 holes			1		1	1			3
Golf – Par 3			2				1		3

Plainfield Portable Pools

With the addition of the proposed acquisitions, municipally provided recreation land will total 28,061 acres. Though the Northeast Region will have the greatest quantity of municipal land (6,071 acres), it will also have the fewest acres per 1,000 population of the State's planning regions. The Central Corridor Region will have the second highest regional total with 5,906 acres.

COMMERICAL, PRIVATE AND QUASI-PUBLIC OUTDOOR RECREATION FACILITIES

During the latter portion of 1966, an inventory of recreation facilities provided by the private sector was conducted through a joint effort by the United States Soil Conservation Service and the New Jersey Department of Environmental Protection (at the time of the survey titled the Department of Conservation and Economic Development). Field representatives attempted to visit each facility; at some areas, however, the owners or managers were absent and the representative could not obtain the inventory data.

Since 1966, changes have inevitably occurred in the supply of private facilities. In an effort to evaluate the magnitude of these changes, a cursory survey of private facilities was undertaken. The results of this examination indicated the 1966 survey was 90-95% accurate for 1970. However, for certain facility categories in which substantial changes have occurred, supplemental inventories were conducted to update data on private campsites, snow skiing areas, and hiking and equestrian trails.

EXISTING

Of the 1,835 facilities inventoried in the original survey, 47% were private limited or restricted membership facilities, 45% were commercial areas open to the public, and 8% were quasi-public facilities associated with a non-profit group or organization. The private facilities surveyed totaled 178,581 acres and included 17,360 acres of water surface. (See Table 16.)

In terms of land and water area, the Northwest Region contained 64,943 acres of private recreation areas, 36.4% of the State's total. The North Central Region ranked next with 38,238 acres or 21.4% followed by the South Shore Region with 19,886 acres or 11.1% and the Southwest Region with 18,094 acres or 10.1%. The Delaware Bay Region contains only 5,332 acres or 3% of the State's total private recreation areas, the lowest of the eight study regions.

The estimated annual attendance at private facilities is 25 million visitors. The highest annual attendance in the State

TABLE 16: EXISTING PRIVATE SECTOR LAND SUPPLY 1970

	Number of Facilities				
Region	Commercial	Private Restricted or Limited Membership	Quasi-Public	Total	Total Area (Acres)
Northwest	69	102	31	211	64,943
North Central	79	127	13	248	38,238
Northeast	88	156	13	281	11,827
Central Corridor	43	75	25	149	11,843
North Shore	192	137	11	421	8,418
Southwest	75	102	14	207	18,094
South Shore	158	32	4	206	19,886
Delaware Bay	43	49	15	112	5,332
State Totals	748	780	126	1,835	178,581

occurs in the South Shore and North Shore regions due mainly to highly developed water-oriented facilities.

The private sector provides significant quantities of facilities for a number of outdoor recreation activities. Statewide, the private sector provides 82% of the permanent swimming pools (475 pools), 23% of the developed shoreline (139,100 feet of shoreline), 86% of the boating berths (29,823 berths), 54% of the hiking trails (1,648 miles), 36% of the equestrian trails (332 miles), and 16% of the hunting acreage (60,990 acres). In addition, the private sector provides ninety-eight 18-hole regulation golf courses, thirty-six 9-hole golf courses and thirty Par 3 courses, 7 snow skiing areas with 620 acres of slopes, 2,264 acres of picnic areas and 587 game courts. (See Table 17.)

TABLE 17: PRIVATE DEVELOPED RECREATIONAL FACILITIES 1970

Facilities	Northwest	North Central	Northeast	Central Corridor	North Shore	Southwest	South Shore	Delaware Bay	State Total
Swimming									
Permanent Pools	31	81	125	80	66	54	11	27	475
Ft. of Shoreline	22,200	26,915	17,385	1,300	34,900	15,400	17,300	3,700	139,100
Acres of Beach									
Boating									
Areas									
Ramps									
Berths	1,088	3,750	2,728	565	9,557	2,547	8,442	1,146	29,823
Water Acreage									
Fishing									
No. of Fac.	91	68	16	9	86	40	51	18	379
Water Acres									
Mi. of Shoreline									
Camping									
Family Sites	2,611	438	331	78	290	387	5,149	390	9,674
Hiking									
Miles of Trails	478	563	231	100	71	80	58	8	1,698
Bicycling									
Miles of Trails									
Horseback Riding									
Miles of Trails	128	29	23	59	56	34		5	332
Hunting									
Acres	30,053	14,815	2	1,034	2,171	2,591	10,120	204	60,990
Picnicking									
Acres	288	484	258	842	85	195	112		2,264
Tables									
Ice Skating									
Natural Areas									
No. of Sites	65	37	14	5	16	17	7	5	166
Acres									
Ice Skating									
Artificial									
Acres									
Snow Skiing									
Acres	326	147		14	16	117			620
Outdoor Games and Sports									
Playgrounds									
Open Playfields									
Game Courts	59	90	252	97	42	39	2	6	587
Golf-18 holes	7	8	32	11	14	18	6	2	98
Golf-9 holes	5	5	10	2	2	5	5	2	36
Golf-Par 3	2	8	7		3	4	5	1	30

Supply of Developed Outdoor Recreation Facilites

In order to examine recreation facilities in terms of the number of people accommodated, the supply data for each activity was converted to daily capacities. This was achieved by applying recreation standards that designated the optimum number of people a given recreation facility can satisfactorily and effectively accommodate on a given day. The capacity standards for each of the twelve recreation activities were chosen with the consideration of the nature of recreation in New Jersey. A more detailed description of the derivation of

TABLE 18: NEW JERSEY'S SUPPLY OF DEVELOPED RECREATIONAL FACILITIES JURISDICTIONAL ANALYSIS 1970

Facilities	Municipal	County	State Parks	State Forests	State F&W* Mgt. Areas	State Recreation Areas	State Marinas	State Misc. Areas	Interstate	Federal	Private	State Total
Swimming												
Permanent Pools	97	7								1	475	580
Ft. of Shoreline	449,342	5,750	600							250	139,100	592,042
Acres of Beach		7	55.5	8	2							72.5
Boating												
Areas	87	5										92
Ramps	91	12		2	4	1			1	2		113
Berths	3,941	1					813		252		29,823	34,830
Water Acreage	7		1,550	225	4,289	1,020		440		4,200		11,731
Fishing												
No. of Fac.											379	379
Water Acres		409	1,677	301	5,320	3,320		144		4,440		15,611
Mi. of Shoreline	649	80	36	7	58	2			12	30.65		873.65
Camping												
Family Sites		74	357	665	6	50				30	9,674	10,856
Hiking												
Miles of Trails	139	544.5	87.7	417.5	134.7			25	33	54.9	1,698	3,134.3
Bicycling												
Miles of Trails	47	2										49
Horseback Riding												
Miles of Trails	26	55	30	393	67.5					12.8	332	918.3
Hunting												
Acres			13,156	162,918	125,118	5,000		115		13,205	60,990	380,502
Picnicking												
Acres	13				15						2,264	2,292
Tables	3,077	5,348	2,158	642		35			500	74		11,834
Ice Skating												
Natural Areas												
No. of Sites											166	166
Acres	2,638	1,519	45	20					1	6		4,229
Ice Skating												
Artificial												
Acres	.3	1.0										1.3
Snow Skiing												
Acres		57									620	677
Outdoor Games and Sports												
Playgrounds	1,485	110	19	7					1			1,622
Open Playfields	3,045	259	26	8						15		3,353
Game Courts	3,044	587									587	4,218
Golf-18 holes	5	17									98	120
Golf-9 holes	3	3									36	42
Golf-Par 3	3	12									30	45

*State Fish and Wildlife Management Areas

each activity's capacity standards will be given in the Needs Chapter of this plan.

The following discussion considers by ownership and regional location what facilities are provided for the twelve activities under consideration. (See Tables 18 and 19.) A thorough analysis of the supply of developed outdoor recreation facilities on a regional basis is undertaken in the Needs Chapter. In Tables 20 through 27, the supply data for the State's eight regions are presented.

At present, New Jersey's developed swimming facilities consist of 580 pools, 595,042 feet of shoreline, and 72.5 acres of beach, that can accommodate a daily capacity of over 1,500,000 people. Municipalities, with 97 pools and 449,342 feet of shoreline accommodating 952,519 people daily, and the private sector, with 475 pools and 139,100 feet of shoreline accommodating 541,825 people, combined provide 97% of the State's total swimming capacity. The 600 feet of shoreline and 65.5 acres of beach provided at state recreation areas accommodate 29,693 people. In the two regions bordering the Atlantic Ocean—the North Shore (Table 24) and South Shore (Table 26)—there are 83 pools, 438,517 feet of shoreline, and 42 acres of beach representing 60% of the State's swimming capacity. The major contributors in both of these regions are the municipalities which provide 6 pools and 382,867 feet of shoreline accommodating 768,964 people daily. The swimming facilities provided by the private sector in the two regions consists of 77 pools and 52,200 feet of shoreline and can accommodate an additional 147,105 people. At present, 10% of New

TABLE 19: NEW JERSEY'S SUPPLY OF DEVELOPED RECREATIONAL FACILITIES—REGIONAL ANALYSIS 1970

Facilities	Municipal	County	State Parks	State Forests	State F & W* Mgt. Areas	State Recreation Areas	State Misc. Areas	Federal	Private	Region Total
Swimming										
Permanent Pools	5							1	31	37
Ft. of Shoreline	1,918							250	22,200	24,368
Acres of Beach			6	3						9
Boating										
Areas	11									11
Ramps	3			2		1		1		7
Berths									1,088	1,088
Water Acreage			1,303	10	30	1,020	144			2,507
Fishing										
No. of Fac.									91	91
Water Acres			1,303	143	223	3,320	144	240		5,373
Mi. of Shoreline	35		4.5	5	12.5	2		29.7		86.7
Camping										
Family Sites			190	198		50		30	2,611	3,079
Hiking										
Miles of Trails	2		23.4	40.3	15			31	478	589.7
Bicycling										
Miles of Trails										
Horseback Riding										
Miles of Trails			20	38	18			4.4	126	206.4
Hunting										
Acres			7,850	13,340	8,215	5,000		7,570	30,053	72,028
Picnicking										
Acres									288	288
Tables	151		564	108		35		50		908
Ice Skating Natural Areas										
No. of Sites									65	65
Acres	33		15	15				6		69
Ice Skating Artificial										
Acres										
Snow Skiing										
Acres									326	326
Outdoor Games and Sports										
Playgrounds	73		7	3						83
Open Playfields	90		6	4				10		110
Game Courts	66								59	125
Golf-18 holes									7	7
Golf-9 holes									5	5
Golf-Par 3									2	2

*State Fish and Wildlife Management Areas

TABLE 20: NORTHWEST REGION DEVELOPED RECREATIONAL FACILITIES 1970

Facilities	Northwest	North Central	Northeast	Central Corridor	North Shore	Southwest	South Shore	Delaware Bay	State Total
Swimming									
Permanent Pools	37	84	182	96	72	69	11	27	580
Ft. of Shoreline	24,368	44,174	20,535	10,252	142,777	35,280	295,740	21,916	595,042
Acres of Beach	9	5.5	7	3	39	2	3	4	72.5
Boating									
Areas	11	2	6	30	15	16	10	3	92
Ramps	7	4	7	14	33	1	36	11	113
Berths	1,088	3,750	3,000	585	12,498	2,555	10,059	1,315	34,830
Water Acreage	2,507	197		314	2,446	49	5,200	1,018	11,731
Fishing									
No. of Fac.	91	68	16	9	66	40	51	16	379
Water Acres	5,373	320	344	37	2,613	37	5,636	1,251	15,611
Mi. of Shoreline	86.7	144.3	65	25	161	149.5	167.75	32.4	873.65
Camping									
Family Sites	3,079	450	350	131	396	492	5,511	447	10,856
Hiking									
Miles of Trails	589.7	754.2	351.5	198.7	317.6	612.7	275.9	34	3,134.3
Bicycling									
Miles of Trails		4	6	3	6	1	28	1	49
Horseback Riding									
Miles of Trails	206.4	39.9	71	71	106.5	193	215.5	15	918.3
Hunting									
Acres	72,028	27,699	907	1,034	43,537	65,838	121,404	48,055	380,502
Picnicking									
Acres	288	484	271	842	100	195	112		2,292
Tables	908	901	5,591	1,760	1,243	313	765	353	11,834
Ice Skating Natural Areas									
No. of Sites	65	37	14	5	16	17	7	5	166
Acres	69	277	436	306	137	1,237	135	1,560	4,229
Ice Skating Artificial									
Acres			1.3						1.3
Snow Skiing									
Acres	326	147	28	41	18	117			677
Outdoor Games and Sports									
Playgrounds	83	89	716	291	124	190	91	38	1,622
Open Playfields	110	237	1,416	623	279	455	148	85	3,353
Game Courts	125	321	2,014	707	279	480	215	77	4,218
Golf-18 holes	7	9	43	17	17	17	8	2	120
Golf-9 holes	5	6	12	3	3	6	5	2	42
Golf-Par 3	2	8	11	1	3	13	6	1	45

Jersey's swimming capacity is provided in the densely populated Northeast Region (Table 22). Of the Northeast Region's total swimming capacity of 145,125 people, 72% is provided by the private sector.

As with swimming, the North Shore and South Shore dominate the New Jersey regions in the supply of facilities for the related water-oriented outdoor recreation activities of boating and fishing. Sixty-four percent of New Jersey's total boating capacity of 132,541 people is provided in these two shore regions; and the private sector, the supplier of 64% of the boating accommodations throughout the State, is the primary contributor in these regions. Three regions containing an abundance of water areas—the Northwest (Table 20), North Shore and South Shore—combined provide 68% of the total state fishing capacity. Forty percent of the total fishing capacity is provided by the State while municipalities provide 35%.

Statewide there are 10,856 campsites that can accommodate 43,424 persons daily. Over three-fourths of the camping facilities are located in the South Shore and Northwest regions with capacities of 22,044 and 12,316 persons, respectively. The 9,674 campsites provided by the private sector account for 89% of the total camping capacity while the 1,078 campsites provided by the State account for 10% of the total capacity.

For the backwoods oriented activities of hiking, horseback riding and hunting, the state level and the private sector are the primary suppliers of facilities. Of New Jersey's 3,134 miles of hiking trails, the private sector provides 54% and the State 21%. The third major contributor of hiking trails is the county

TABLE 21: NORTH CENTRAL REGION DEVELOPED RECREATIONAL FACILITIES 1970

Facilities	Municipal	County	State Parks	State Forests	State F & W* Mgt. Areas	Federal	Private	Region Total
Swimming								
Permanent Pools	3						81	84
Ft. of Shoreline	18,659		600				26,915	44,174
Acres of Beach			5.5					5.5
Boating								
Areas	2							2
Ramps	2	2						4
Berths							3,750	3,750
Water Acreage			157		40			197
Fishing								
No. of Fac.							68	68
Water Acres		20	240		60			320
Mi. of Shoreline	132	1	4.6	1	5	.7		144.3
Camping								
Family Sites		12					438	450
Hiking								
Miles of Trails	2	12	31	19.8	2.5	23.9	663	754.2
Bicycling								
Miles of Trails	4							4
Horseback Riding								
Miles of Trails		1			1.5	6.4	29	39.9
Hunting								
Acres			3,551	4,150	5,183		14,815	27,699
Picnicking								
Acres							484	484
Tables	52	100	725			24		901
Ice Skating								
Natural Areas								
No. of Sites							37	37
Acres	243	10	24					277
Ice Skating								
Artificial								
Acres								
Snow Skiing								
Acres							147	147
Outdoor Games and Sports								
Playgrounds	83	1	5					89
Open Playfields	225	4	3			5		237
Game Courts	231						90	321
Golf 18 holes		1					8	9
Golf-9 holes		1					5	6
Golf-Par 3							8	8

*State Fish and Wildlife Management Areas

TABLE 22: NORTHEAST REGION DEVELOPED RECREATIONAL FACILITIES 1970

Facilities	Municipal	County	State Parks	State Forests	State F&W* Mgt. Areas	Inter-State	Federal	Private	Region Total
Swimming									
Permanent Pools	54	3						125	182
Ft. of Shoreline	2,450	700						17,385	20,535
Acres of Beach		7							7
Boating									
Areas	4	1							5
Ramps	3	3				1			7
Berths	20					252		2,778	3,000
Water Acreage									
Fishing									
No. of Fac.									
Water Acres		309	35						344
Mi. of Shoreline	48	25				12			85
Camping									
Family Sites		19						331	350
Hiking									
Miles of Trails	5	82.5				33		231	351.5
Bicycling									
Miles of Trails	4	2							6
Horseback Riding									
Miles of Trails	1	47						23	71
Hunting									
Acres			905					2	907
Picnicking									
Acres	13							258	271
Tables	1,450	3,641				500			5,591
Ice Skating									
Natural Areas									
No. of Sites								14	14
Acres	259	178				1			438
Ice Skating									
Artificial									
Acres	.3	1.0							1.3
Snow Skiing									
Acres		28							28
Outdoor Games & Sports									
Playgrounds	518	97				1			716
Open Playfields	1,204	212							1,416
Game Courts	1,315	447						252	2,014
Golf – 18 holes	2	9						32	43
Golf – 9 holes	1	1						10	12
Golf – Par 3	2	2						7	11

*State Fish and Wildlife Management Areas

level with 544 miles of trails, 17% of the State's total mileage. Sixty-two percent of the State's total hiking capacity of 50,148 persons is provided in three regions: the North Central (Table 21), Southwest (Table 25), and Northwest regions.

Nearly 90% of New Jersey's equestrian trails (918 miles) is provided in state administered areas and privately owned lands. Three regions—the South Shore, Northwest and Southwest—collectively have 62% of the State's total horseback riding daily capacity of 11,020 persons.

State administered lands account for 80% of the 380,502 acres of land opened for hunting in New Jersey. Hunting areas in the South Shore, Northwest and Southwest regions account for 32%, 19% and 17%, respectively, of the State's total hunting capacity of 76,101 persons.

At the present time, municipalities provide 47 of the 49 miles of designated bicycle trails in New Jersey. Fifty-seven percent of the State's total bicycling capacity of 882 people is provided in one region, the South Shore. Nearly all bicycling takes place on municipal streets and county roads because the minuscule supply of designated bicycle trails is grossly inadequate. Bicyclists using public thoroughfares are constantly exposed to the dangers associated with automobile traffic that would not be present on designated trails.

The two urbanized regions of New Jersey—the Northeast and the Central Corridor (Table 23)—account for very low proportions of the total state facility capacities for camping, hiking, horseback riding and hunting. These activities require relatively large expanses of undeveloped land, a scarce commodity in

TABLE 23: CENTRAL CORRIDOR REGION DEVELOPED RECREATIONAL FACILITIES 1970

Facilities	Municipal	County	State Parks	State Forests	State F&W* Mgt. Areas	State Misc. Areas	Federal	Private	Region Total
Swimming									
Permanent Pools	18							80	98
Ft. of Shoreline	8,552	400						1,300	10,252
Acres of Beach			3						3
Boating									
Areas	30								30
Ramps	9	5							14
Berths								565	565
Water Acreage					18	296			314
Fishing									
No. of Fac.								9	9
Water Acres		10	9		18				37
Mi. of Shoreline	21	4							25
Camping									
Family Sites			53					78	131
Hiking									
Miles of Trails	4	50	9.7		1	25		109	198.7
Bicycling									
Miles of Trails	3								3
Horseback Riding									
Miles of Trails		7	5.0					59	71
Hunting									
Acres								1,034	1,034
Picnicking									
Acres								842	842
Tables	470	765	525						1,760
Ice Skating Natural Areas									
No. of Sites								5	5
Acres	277	29							306
Ice Skating Artificial									
Acres									
Snow Skiing									
Acres		27						14	41
Outdoor Games & Sports									
Playgrounds	281	6	4						291
Open Playfields	588	27	8						623
Game Courts	527	83						97	707
Golf – 18 holes	1	5						11	17
Golf – 9 holes		1						2	3
Golf – Par 3		1							1

*State Fish and Wildlife Management Areas

TABLE 24: NORTH SHORE REGION DEVELOPED RECREATIONAL FACILITIES 1970

Facilities	Municipal	County	State Parks	State Forests	State F&W* Mgt. Areas	State Marinas	State Misc. Areas	Federal	Private	Region Total
Swimming										
Permanent Pools	6								66	72
Ft. of Shoreline	104,427	3,450							34,900	142,777
Acres of Beach			37		2.0					39
Boating										
Areas	15									15
Ramps	32	1								33
Berths	2,636					305			9,557	12,498
Water Acreage					446			2,000		2,446
Fishing										
No. of Fac.									86	86
Water Acres		70			543			2,000		2,613
Mi. of Shoreline	143		23		15					181
Camping										
Family Sites		43	57		6				290	396
Hiking										
Miles of Trails	110	40	13.1	10	73.5				71	317.6
Bicycling										
Miles of Trails	6									6
Horseback Riding										
Miles of Trails	15		5	10	20.5				56	106.5
Hunting										
Acres				9,309	31,942		115		2,171	43,537
Picnicking										
Acres					15				85	100
Tables	339	752	152							1,243
Ice Skating Natural Areas										
No. of Sites									16	16
Acres	40	97								137
Ice Skating Artificial										
Acres										
Snow Skiing										
Acres		2							16	18
Outdoor Games & Sports										
Playgrounds	121	2	1							124
Open Playfields	268	10	1							279
Game Courts	217	20							42	279
Golf – 18 holes	2	1							14	17
Golf – 9 holes	1								2	3
Golf – Par 3									3	3

*State Fish and Wildlife Management Areas

the urban regions. However, the Northeast and Central Corridor regions combined account for over 50% of the total state capacities for picnicking and playing outdoor games and sports. Both of these activities generally take place close to home and require relatively small land areas for facility development. The Northeast and Central Corridor regions provide, respectively, 26% and 28% of the total state picnicking capacity of 150,850 persons and 44% and 17% of the total state outdoor games and sports capacity of 201,920 persons. Throughout the State, counties and municipalities provide the majority of the picnicking and outdoor games and sports facilities.

New Jersey's thirteen snow skiing facilities can accommodate 20,325 people daily. The eight privately operated ski areas have daily capacities of 18,625 people while the five county ski areas can accommodate 1,700 people. The five private

Wharton Tract

TABLE 25: SOUTHWEST REGION DEVELOPED RECREATIONAL FACILITIES 1970

Facilities	Municipal	County	State Parks	State Forests	State F & W* Mgt. Areas	Federal	Private	Region Total
Swimming								
Permanent Pools	11	4					54	69
Ft. of Shoreline	18,680	1,200					15,400	35,280
Acres of Beach				2				2
Boating								
Areas	12	4						16
Ramps		1						1
Berths	7	1					2,547	2,555
Water Acreage	7				42			49
Fishing								
No. of Fac.							40	40
Water Acres					37			37
Mi. of Shoreline	79	50			20.5			149.5
Camping								
Family Sites				105			387	492
Hiking								
Miles of Trails	7	360	1.5	158.5	5.7		80	612.7
Bicycling								
Miles of Trails	1							1
Horseback Riding								
Miles of Trails				157	2.0		34	193
Hunting								
Acres			850	58,130	4,257		2,591	65,838
Picnicking								
Acres							195	195
Tables	178	40		95				313
Ice Skating Natural Areas								
No. of Sites							17	17
Acres	82	1,200		5				1,287
Ice Skating Artificial								
Acres								
Snow Skiing								
Acres							117	117
Outdoor Games and Sports								
Playgrounds	187	3						190
Open Playfields	450	5						455
Game Courts	415	26					39	480
Golf-18 holes		1					16	17
Golf-9 holes	1						5	6
Golf-Par 3		9					4	13

*State Fish and Wildlife Management Areas

TABLE 26: SOUTH SHORE REGION DEVELOPED RECREATIONAL FACILITIES 1970

Facilities	Municipal	County	State Parks	State Forests	State F&W* Mgt. Areas	State Marinas	Federal	Private	Region Total
Swimming									
Permanent Pools								11	11
Ft. of Shoreline	278,440							17,300	295,740
Acres of Beach				3					3
Boating									
Areas	10								10
Ramps	32				2		1		36
Berths	1,233					384		8,442	10,059
Water Acreage				215	2,785		2,200		5,200
Fishing									
No. of Fac.								51	51
Water Acres				158	3,278			2,200	5,636
Mi. of Shoreline	164		2.5	1			.25		167.75
Camping									
Family Sites				362				5,149	5,511
Hiking									
Miles of Trails	8			188.9	21			58	275.9
Bicycling									
Miles of Trails	28								28
Horseback Riding									
Miles of Trails	12			188	15.5				215.5
Hunting									
Acres				76,466	29,818		5,000	10,120	121,404
Picnicking									
Acres								112	112
Tables	276	50		439					765
Ice Skating Natural Areas									
No. of Sites								7	7
Acres	130	5							135
Ice Skating Artificial									
Acres									
Snow Skiing									
Acres									
Outdoor Games & Sports									
Playgrounds	86	1		4					91
Open Playfields	143	1		4					148
Game Courts	202	11						2	215
Golf – 18 holes								8	8
Golf – 9 holes								5	5
Golf – Par 3	1							5	6

*State Fish and Wildlife Management Areas

snow skiing facilities located in the rural uplands of the Northwest and North Central regions provide 70% of the State's total snow skiing capacity. The only regions lacking snow skiing facilities are the South Shore and Delaware Bay regions.

Municipal and county levels of government are the major suppliers of New Jersey's ice skating facilities that can accommodate 3,182,864 people daily. Nearly all of this ice skating supply is in the form of natural ice skating areas that statewide amount to 4,229 acres of water surface. At present, the 1.3 acres of artificial ice provided by municipalities in the Northeast Region represent New Jersey's total outdoor artificial ice skating area. Sixty-six percent of the State's total ice skating capacity is provided by facilities located in the Delaware Bay and Southwest regions.

TABLE 27: DELAWARE BAY REGION DEVELOPED RECREATIONAL FACILITIES 1970

Facilities	Municipal	County	State Parks	State Forests	State F&W* Mgt. Areas	State Marinas	Federal	Private	Region Total
Swimming									
Permanent Pools								27	27
Ft. of Shoreline	18,216							3,700	21,916
Acres of Beach			4						4
Boating									
Areas	3								3
Ramps	9				2				11
Berths	45					124		1,146	1,315
Water Acreage			90		928				1,018
Fishing									
No. of Fac.								18	18
Water Acres			90		1,161				1,251
Mi. of Shoreline	27		4		5				32.4
Camping									
Family Sites			57					390	447
Hiking									
Miles of Trails	1		9		16			8	34
Bicycling									
Miles of Trails	1								1
Horseback Riding									
Miles of Trails					10			5	15
Hunting									
Acres				1,523	45,693		635	204	48,055
Picnicking									
Acres									
Tables	161		192						353
Ice Skating									
Natural Areas									
No. of Sites								5	5
Acres	1,574		6						1,580
Ice Skating									
Artificial									
Acres									
Snow Skiing									
Acres									
Outdoor Games & Sports									
Playgrounds	36		2						38
Open Playfields	77		8						85
Game Courts	71							6	77
Golf – 18 holes								2	2
Golf – 9 holes								2	2
Golf – Par 3								1	1

*State Fish and Wildlife Management Areas

Future Supply of Developed Outdoor Recreation Facilities

Public development of outdoor recreation facilities in the future will be determined by the funds available to each of the levels of government for such purposes. In the case of the private sector, commercial interests in particular, the profitability of the recreation facility supply market will greatly influence the type and extent of future recreation development.

As the recognition of the importance of outdoor recreation grows and public support increases, the appropriations for the existing federal matching fund programs for outdoor recreation facility development can be expected to increase. In addition, new federal and state grant programs may be established in response to the expanding recreation needs of the public. The additional funds made available through expanded matching fund programs are expected to spur recreation facility development on recently acquired Green Acres sites.

In the future, municipalities and counties can be expected to continue recreation facility development for activities such as playing outdoor games and sports, picnicking, ice skating and swimming that are primarily home oriented in nature and require limited land areas. Future state development will consist primarily of facilities requiring extensive land and water areas for activities such as hiking, camping, boating, horseback riding, hunting and fishing.

The private sector is expected to respond to the projected expansion in the market for outdoor recreation opportunities and continue developing new recreation facilities. Commercial recreation enterprises, the largest supplier of the private sector, will develop the more profitable facilities such as snow skiing areas, boating facilities, and campgrounds.

New Jersey's Historic Resources

As one of the original thirteen states, New Jersey is rich in Colonial and Revolutionary history. Fortunately, many of the

significant sites and structures of these and later periods have been preserved through the efforts of interested individuals and various historic societies and by state and federal actions. These historic sites representing New Jersey's cultural, social, agricultural and industrial past are fairly evenly distributed throughout the State.

A partial inventory compiled by the Historic Sites Section of the Department of Environmental Protection lists over two thousand historic sites, buildings and structures that are of historical, architectural or archeological interest. The inventoried sites, both publicly and privately owned, range from Revolutionary War battlefields to restored Colonial bog iron industry villages and homes of famous Americans.

The National Register of Historic Places Program was expanded by the National Historic Preservation Act of 1966 to include sites and buildings of state and local importance as well as those of national significance. National Register status gives a measure of protection from federally funded or authorized projects to a site or building. Also, registered sites are eligible for matching federal funds for acquisition, preservation and restoration. The 62 sites in New Jersey which have been placed on the National Register are listed in Appendix M.

In addition, the National Park Service administers two areas of national historic interest: the Morristown National Historical Park containing the Ford Mansion, Fort Nonsense and the Jockey Hollow encampment; and the Edison National Historic Site in West Orange.

In 1970, the New Jersey Legislature established the State Register of Historic Places. At present, the State Register consists of 66 sites, districts, buildings, structures or objects including all of the State's entries on the National Register. (See Appendix M for a listing of registered properties.) Placement on the State Register protects a site or building from state, county or municipal encroachments without prior written approval of the Commissioner of the Department of Environmental Protection.

Thirty-four sites of historic interest are under direct control of the State: twenty-six state historic sites and eight historic areas within state parks and forest. Included in the system are the following sites:

1. Washington's Crossing
2. Princeton Battlefield
3. Monmouth Battlefield
4. Fort Mott
5. Allaire
6. Ringwood Manor
7. Batsto
8. Washington Rock

New Jersey's Significant Natural Areas

Since virtually no extensive area in the State has escaped the influence of man at one time or another, New Jersey does not have what could accurately be termed pristine primitive areas. However, it does have many areas which possess significant natural features worthy of protection and preservation. Some of the areas contain the State's only remaining examples of certain native ecosystems while others provide habitats for rare or unique species of flora or fauna.

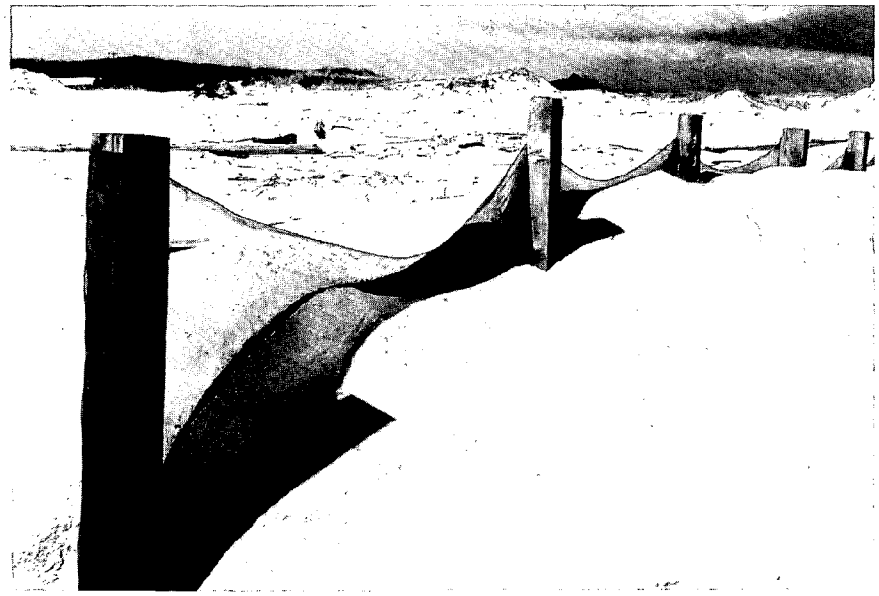
It is fortunate that many public and private agencies have taken positive steps to permanently protect the State's most outstanding natural features. Responding to the pressing need to preserve natural areas while they still remain available, the federal, state, county and municipal levels of government have acquired many of the more significant areas. In addition, interested individuals and conservation-minded organizations have acquired a number of natural areas for preservation purposes.

As the first stage in the preparation of a statewide natural areas preservation plan, the Division of Parks and Forestry of the Department of Environmental Protection has compiled an inventory of publicly and privately owned natural areas. A partial listing of the inventoried areas is presented by region in Appendix N. The state owned areas possessing natural features of national significance are identified in the listing as candidates for inclusion into the National Register of Natural Landmarks.

SUPPLY OF WATER RESOURCES IV

New Jersey is fortunate to have an abundance and variety of water resources. It is bounded on three sides by water: on the east by the Hudson River and the Atlantic Ocean, on the south by the Delaware Bay and on the west by the Delaware River. Within the State's boundaries there are over 50,000 acres of lakes, ponds and reservoirs and nearly 6,500 miles of streams and rivers. In addition to these freshwater resources, there are thousands of acres of bays lying between the mainland and the barrier beaches lining the New Jersey coast.

Island Beach



New Jersey's famed 127 mile long Atlantic coastline is a very important asset of the State's economy; tourism, one of the State's largest industries, is centered along it. Every year millions of people are attracted by the shore's recreational appeal to the many resort areas lining the State's coast.

Water not only serves as the basic resource for participation in the water-based recreation activities of swimming, fishing, boating, canoeing, water skiing and water fowl hunting; it also serves as the background or setting for many seemingly unrelated activities, enhancing the intrinsic satisfaction derived from participation. For instance, picnicking and camping are much more enjoyable when the sites are provided close to bodies of water.

Recreation is just one of the many uses of the State's water resources. However, the following discussion will be primarily concerned with the various types of water resources as they relate to outdoor recreation with the exception of the section devoted to ground water resources which will serve as background information.

Ground Water

New Jersey may, for the purpose of simplification, be separated into three regions with relatively similar ground water characteristics. The regions are the Appalachian Ridge and Valley-Highlands in the northwestern part of the State; the Piedmont Plain, starting in the northeast and extending through to the Delaware River above Trenton; and the

Skating, Lake Hopatcong

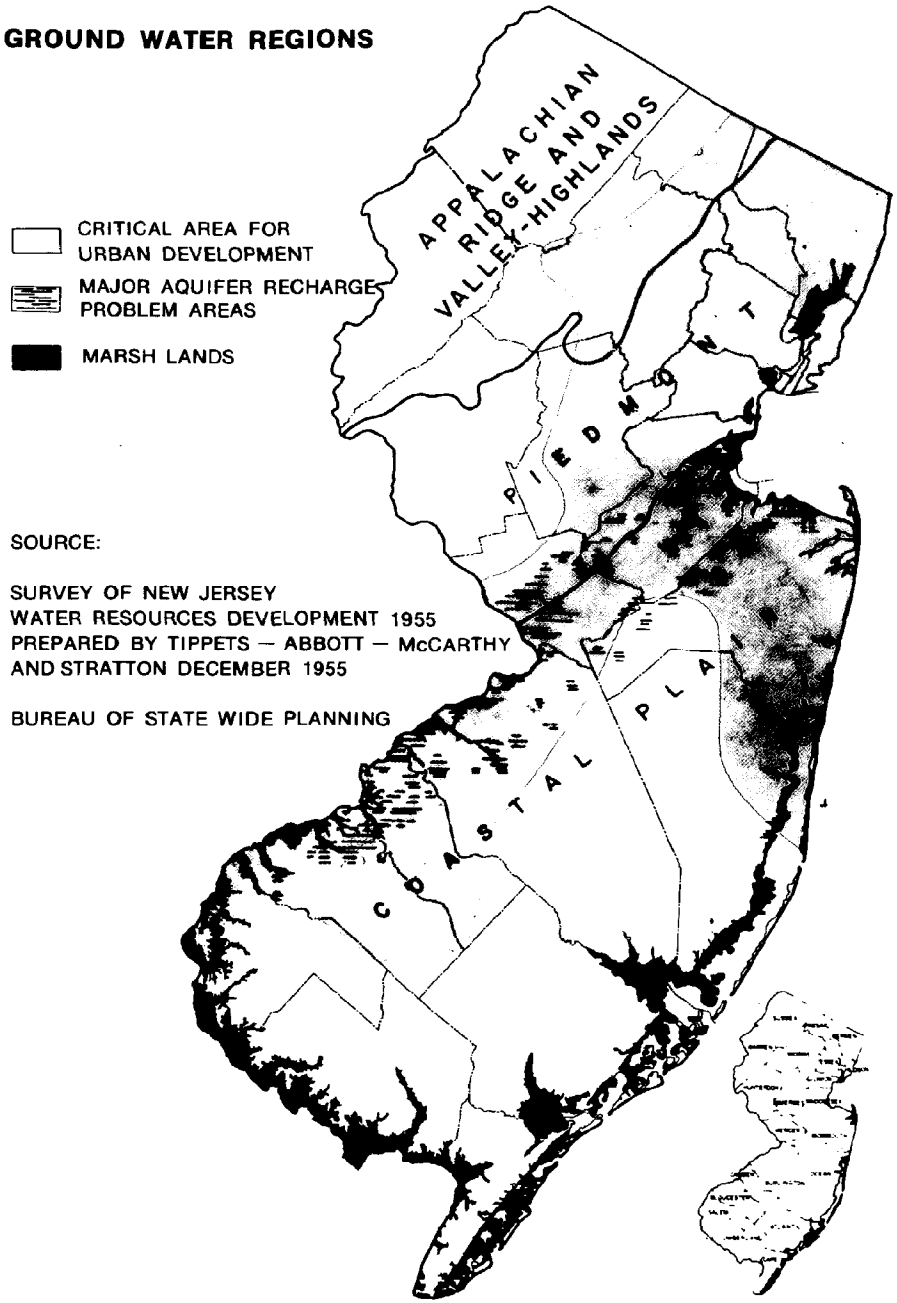
Coastal Plain, which comprises the entire southern part of the State below a line from Trenton to Perth Amboy. The map entitled "Ground Water Regions" shows the approximate boundaries as described above.

The Appalachian Ridge and Valley-Highlands region has the least favorable conditions for the occurrence of reliable ground water supplies in large quantities; the geological character of the region does not permit the formation of good aquifers.

The Piedmont Plain offers greater potential as a ground water source than does the Appalachian Ridge and Valley-Highlands region; however, in the Piedmont Plain, which includes the heavily populated Northeast, the local ground water sources are substantially developed.

Of the three regions, the Coastal Plain has the greatest abundance of ground water. The underlying aquifers are considered a reliable water source for the southwestern and coastal regions. However, portions of this region, bordering on tidal waters, have been endangered by saltwater encroachment resulting from urban development in many aquifer recharge areas.

GROUND WATER REGIONS



SOURCE:

SURVEY OF NEW JERSEY
WATER RESOURCES DEVELOPMENT 1955
PREPARED BY TIPPETS — ABBOTT — McCARTHY
AND STRATTON DECEMBER 1955

BUREAU OF STATE WIDE PLANNING

Rivers and Streams

The total mileage of New Jersey's numerous rivers and streams approaches 6,448 miles. New Jersey's rivers and streams vary markedly in character; some originate in the mountains of northern New Jersey and southern New York and flow rapidly through rugged terrain while others begin within the State's interior and flow at a more leisurely pace through the relatively flat terrain of the Pine Barrens in central New Jersey. Some traverse areas rich in historic landmarks and others pass through areas which have remained nearly primitive in appearance.

Analysis of the State's rivers and streams on a regional planning basis, the approach employed elsewhere in this plan, does not appear feasible. Rivers frequently flow through two or more planning regions, and, in a few instances, rivers and streams actually form the boundary between two regions. Therefore, for discussion purposes, New Jersey will be divided into four sections: Northwest, Northeast, Coastal and Southwest (see map entitled "Major Rivers and Streams"). Rivers and streams occurring within a section are generally similar in their origins, floodplains and flow patterns.

Northwestern Section: The principal rivers of the mountainous Northwestern Section of New Jersey are the Pohatcong, Musconetcong, Pequest, Flat Brook and Paulins Kill. These rivers drain into the Delaware and the Wallkill which, in turn, drain into the Atlantic Ocean and Hudson River, respectively. Runoff in this mountainous terrain is rapid and causes the streams to have a flash-flood characteristic. Runoff is regulated to some degree, however, by the large number of lakes and ponds in this region. Small drainage areas limited to narrow valleys are also characteristic of the section. For the most part, the water quality of the Northwest section's rivers and streams is high.

The rivers and streams of this section offer the best trout fishing in the State. Many of the section's rivers are annually stocked with trout by the Division of Fish, Game and Shellfisheries to supplement natural reproduction or to create recreational fishing.

Besides fishing, other recreational use of the section's rivers is limited. However, during the spring when the run-off provides high water, several streams offer challenging white water canoeing.

Northeastern Section: The Hackensack, Raritan and Passaic Rivers are the major river systems in northeastern New Jersey. The minor systems of the Elizabeth and Rahway Rivers and the aforementioned major systems drain this region.

Stream flow in this section of the State is erratic with wide variations in flow between wet and dry periods because of impounding and high use by domestic and industrial interests. During periods of low flow, the capacity of this section's rivers to wash away pollutants is severely reduced. Since the dry periods normally coincide with the summer season, the recreational potential of many of the region's rivers for contact

activities such as swimming is limited by pollution. Boating and canoeing, non-contact activities, take place on rivers with sufficient water flow.

Coastal Section: The Shrewsbury-Navesink, Manasquan, Metedeconk, Toms, Mullica, Wading, Maurice and Great Egg Harbor are the principal rivers of the coastal region. Flow is southeasterly across the eastern slope of the Coastal Plain, and all terminate in the Atlantic Ocean or the Delaware Bay.

The runoff characteristics of the area are quite different from those of northern New Jersey. The erratic characteristics of the more northerly streams are not present in the rivers of the Coastal Plain. This phenomenon is a result of the absorption of a large part of the precipitation into the porous ground and the movement of this water through the ground to stream beds at a relatively uniform rate. These factors tend to reduce or minimize the difference between wet and dry weather flows.

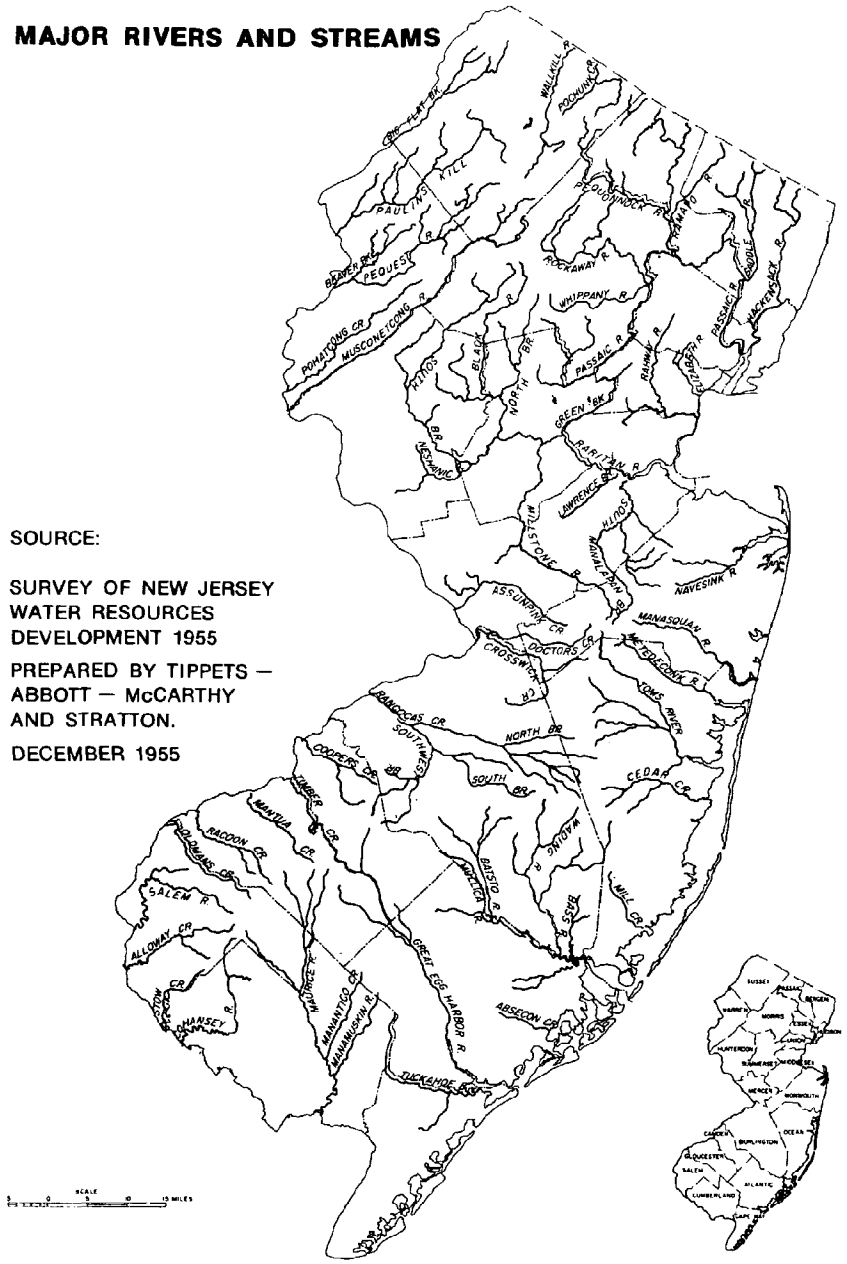
In general, recreational use of this section's rivers and streams has not been seriously affected by water pollution. However, if adequate programs are not undertaken to cope with the growing wastes produced by the region's rapidly growing population, water pollution could become a major problem in the future.

Southwestern Section: That portion of New Jersey defined as the southwestern region encompasses the western or Delaware slope of the Coastal Plain. The principal streams are Rancocas Creek, Cohansey Creek, Salem Creek and Crosswicks Creek. The Delaware River is the terminus for these creeks and a large number of lesser streams which drain the region. Tidal action affects most of these streams at their juncture with the Delaware River.

The southwestern region's topography and runoff pattern is similar to that of the coastal region, with pervious surface formations and flat, natural terrain common to most of the area. Similarly, these factors also produce a more uniform stream flow than is found in the northern part of the State.

Water quality becomes a problem for many of this section's streams as they pass through the densely urbanized

MAJOR RIVERS AND STREAMS



SOURCE:

SURVEY OF NEW JERSEY WATER RESOURCES DEVELOPMENT 1955

PREPARED BY TIPPETS — ABBOTT — McCARTHY AND STRATTON.

DECEMBER 1955

strip along the Delaware River. Within the section's interior, the water quality of the streams is suitable for contact recreational use.

CANOE RUNS

On many of New Jersey's fine rivers and streams, one may enjoy canoeing with its concomitant recreational pleasures of camping, sightseeing and picnicking from April through October. The following listing of several of the State's more important canoe runs contains brief descriptions of their usability.

HACKENSACK RIVER is cruisable at all seasons from New Bridge southward for about 20 miles to Newark Bay.

PASSAIC RIVER is a delightful stream for both spring and fall after rains have provided sufficient water for cruising.

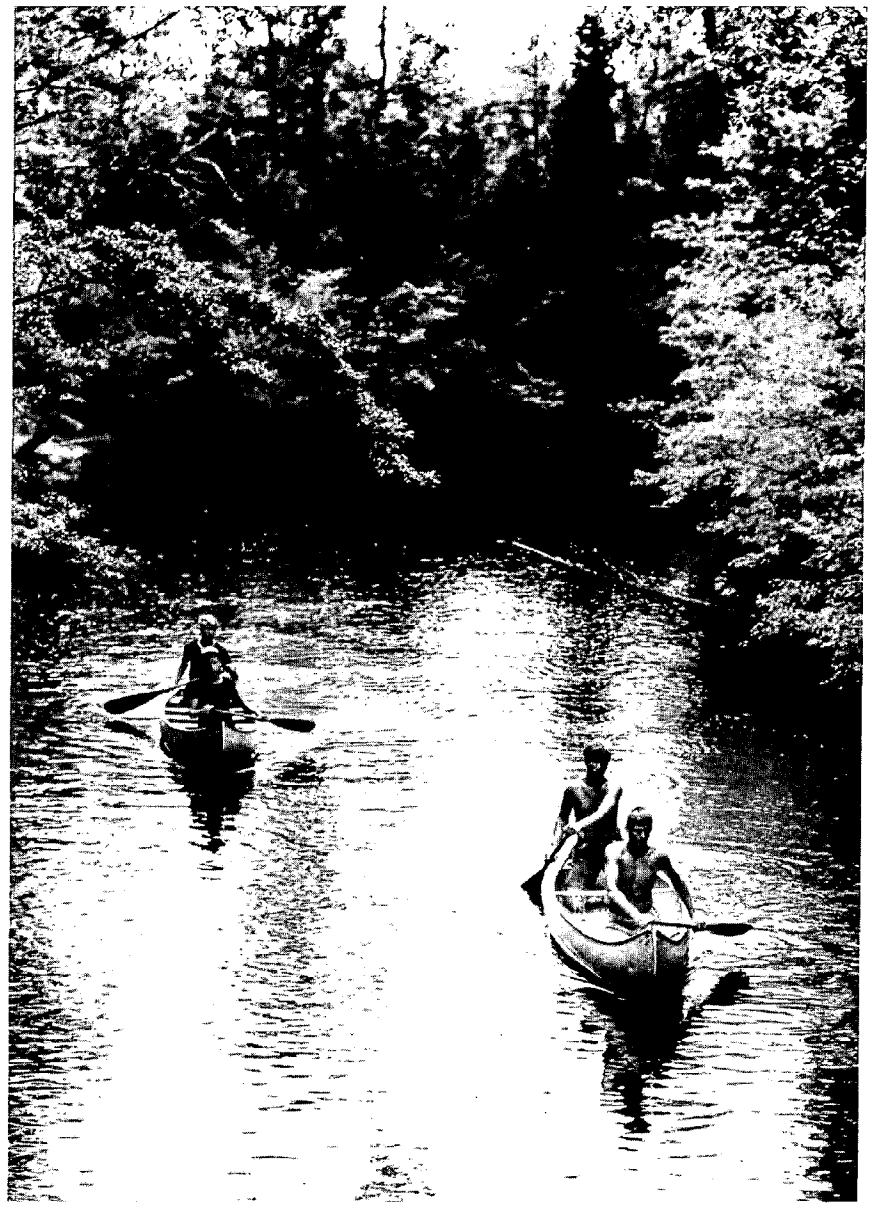
RAMAPO RIVER offers good cruising in spring and fall during the high water with some "white water" runs of interest from Suffern for about 20 miles to below Mountain View where the stream joins the Passaic in the vicinity of Two Bridges.

WANAQUE RIVER makes an exciting spring "white water" run from the village of Wanaque for about 8 miles where the stream enters the Pequannock River which, in turn, flows into the Ramapo in the vicinity of Pompton Plains.

MULLICA RIVER from Atsion to Pleasant Mills where it is joined by the Batsto River may be cruised in normal or high water. From Pleasant Mills down to the sea there is plenty of water for the canoeist, even during the driest season. A pleasant side trip can be made to the restored village area at Batsto.

MAURICE RIVER offers a wide variety of beauty and many places of interest to canoeists. One of the unusual features of this attractive river is Union Lake which was created by a power dam at Millville. The water of the stream is backed up into a lake nearly four miles long making it the largest wholly artificial lake in New Jersey.

METEDECONK RIVER offers the canoeist many surprises. One naturally expects to find tepid water in South Jersey, but the



Metedeconk is apparently fed by cold water springs making the water ice cold and crystal clear.

THE PAULINS KILL flows through countryside both bold and picturesque. The Kittatinny Mountain Range parallels the entire course of the river, the rugged hills actually extending to its shores. There is glorious scenery throughout the valley and many places of historic interest. Caution is necessary when cruising this stream in flood.

MUSCONETCONG RIVER in itself is not a river to be explored by canoe. There are, however, about four miles of the Morris Canal which are intact and cruisable by canoe. A charming colonial village restoration exists at Waterloo.

MILLSTONE RIVER is undoubtedly the most charming of the little rivers of New Jersey and can be cruised about 8 miles from Cranbury to Princeton.

SOUTH BRANCH OF THE RARITAN, from the vicinity of Three Bridges at Flemington Junction, is a beautiful 16 mile spring run to Somerville with a stream flow augmented by waters released from the state owned Spruce Run Reservoir which may extend the canoeing season well into the fall of the year.

NORTH BRANCH OF THE RARITAN may be cruised for 10 miles in the spring during high water from the vicinity of Whitehouse to where it joins the south branch to form the Raritan River at the Township of Branchburg. During the late 1970s, after completion of the Round Valley Reservoir North Dam release pipeline, stream flows will be augmented to extend the canoeing period well into the fall.

RANCOCAS CREEK is an excellent stream for about 20 miles from Brown's Mills (north branch Rancocas Creek) to where it empties into the Delaware River near Riverside.

WADING RIVER runs through wild country from Chatsworth for about 25 miles to where it empties into the Mullica River. This is wild pineland cruising with no towns, except Wading River, en route.

GREAT EGG HARBOR RIVER from the vicinity of Braddock offers excellent cruising for about 25 miles to where it empties into tidewater at Great Egg Harbor Bay.

THE MANASQUAN RIVER from the vicinity of Farmingdale to Brielle offers an enjoyable 12 mile cruise through a combination of upland forests composed predominantly of hardwoods and pine dominated forests characterizing the Pinelands. An interesting side trip may be taken to the Historic Howell Works in Allaire State Park.

DELAWARE RIVER, of course, offers by far the most extensive, the most picturesque, the most thrilling of all local cruises. During early spring it is sporty enough to tax the ability of the most expert canoeist. About Declaration Day, the average experienced canoeist can run it in safety with the possible exception of Foul Rift above Belvidere and Wells Falls at Lambertville. During the summer, the run also can be made after local rains have filled the river.

Canals

New Jersey's four canals were constructed for one of two purposes: as part of New Jersey's Intracoastal Waterway or for transportation of materials from the Delaware River across the State to the eastern urban centers.

Although the two canals composing segments of the Intracoastal Waterway are short, they are heavily used by boaters traveling along the Atlantic Coast. The Bayhead-Manasquan Canal in Ocean County is slightly more than two miles in length, and the Cape May Canal, crossing the tip of Cape May County, measures approximately 5 miles. Both of the canals are maintained by the U.S. Corps of Engineers for navigation purposes.

During the early part of the nineteenth century, the Delaware and Raritan and Morris Canals were constructed for barge traffic across the State. In recent times, portions of both of these canals have been filled rendering neither navigable for their entire original distance.

The present Delaware and Raritan Canal together with its feeder originates at the Delaware River above Stockton, runs for 22 miles parallel to the Delaware River to Trenton, and thence 38 miles to the Raritan River at New Brunswick. Except for a two mile underground twin culvert in the City of Trenton, the 60 mile length of the canal and feeder is open and available for recreational use. The canal is operated as a state owned water supply system and is heavily used by the residents of the Central Corridor for canoeing, boating and fishing.

When the Morris Canal was constructed it extended over one hundred miles from Phillipsburg on the Delaware River through Jersey City to the Hudson River. Today, only segments exist in three regions—Northwest, North Central and Northeast. In the near future, the title to these segments of the canal will revert to state ownership.

Atlantic Coastline

New Jersey's 127 mile Atlantic coastline is the State's most valuable natural resource in terms of recreation, which can be pursued in a variety of ways. One can simply walk along the beach or just relax in the sun. For the more active recreationists, there are opportunities for skin diving, surfing, boating and water skiing in the ocean and bay areas.

About 90% of New Jersey's shoreline is composed of sandbar islands lying at varying distances off the mainland. The remaining shoreline consists of stable earth extending right down to the sea.

The beachline of New Jersey is under constant change due to the erosive force of the ocean shifting the sand. This has necessitated the construction of jetties and sea walls along many areas to stabilize the beach. Many shore communities find it necessary to periodically restore beaches by replacing sand which has been washed away.

Beach user fees are charged by many shore communities to cover the expenses of providing lifeguards and other services. At many communities, fees are levied against nonresidents only. Residents of these communities receive season passes either free of charge, presumably because their taxes are used to defray a portion of the beach operation costs, or at low season rates. This practice has been judged discriminatory in a recent court decision, and the communities are under court order to revise their fee systems so that residents and nonresidents are charged comparable amounts for the same services.

Two of New Jersey's study regions, the North Shore and South Shore, front the Atlantic Ocean. Nearly 55% of the State's coastline is located in the South Shore Region and the North Shore accounts for the remaining 45%. Approximately

Atlantic City Marina

TABLE 1A: NEW JERSEY'S ATLANTIC COASTLINE OWNERSHIP 1969

Region	Total Shoreline (feet)	Publicly Owned Shoreline		Privately Owned Shoreline	
		Length (feet)	Percent of Total Shoreline (%)	Length (feet)	Percent of Total Shoreline (%)
North Shore	263,646	153,841	58.4	109,805	41.6
South Shore	376,234	298,501	79.3	77,733	20.7
State Total	639,880	452,342	70.7	187,538	29.3

TABLE 1B: NEW JERSEY'S ATLANTIC COASTLINE SHORELINE USED FOR RECREATION 1969

Region	Public Shoreline Open for Recreation			Private Shoreline Open for Public Recreation			Total Shoreline Open for Public Recreation	
	Length (feet)	Percent of Total Public Shoreline (%)	Percent of Total Shoreline (%)	Length (feet)	Percent of Total Private Shoreline (%)	Percent of Total Shoreline (%)	Length (feet)	Percent of Total Shoreline (%)
North Shore	127,497	82.9	48.4	24,523	22.3	9.3	152,020	57.7
South Shore	298,501	100.0	79.3	77,733	100.0	20.7	376,234	100.0
State Totals	425,998	94.2	66.6	102,256	54.5	16.0	528,254	82.6

Source: U.S. Corps of Engineers

70% of the 127 miles of Atlantic coastline is owned by public agencies and slightly less than 30% is owned by private interests. (See Table 1A.)

NORTH SHORE REGION

Only 58% of the North Shore's coastline, 263, 646 feet, is under public ownership. Private frontage amounts to 109, 805 feet or just under 42% of the region's shoreline. Approximately 58% of the region's coastline is open to the public for recreational use. (See Table 1B.) Eighty-three percent of the publicly owned coastline is open for public recreation while only 22% of the privately owned shoreline is available for public use.

New Jersey's most popular state parks, Island Beach and Sandy Hook, front the Atlantic Ocean in this region. Island Beach State Park, situated in the southern part of the Barnegat Peninsula, an offshore sandbar, is one of the few natural expanses of barrier beach remaining along the eastern edge of the North American continent. Besides extensive beaches, the park contains a botanical preserve and a wildlife sanctuary. Sandy Hook State Park is located on the southern part of Sandy Hook Peninsula which extends from New Jersey's mainland into the Raritan Bay. The appealing beaches of this state park attract visitors from the nearby New York metropolitan area as well as the urban centers of northeastern New Jersey.

Asbury Park may be considered the recreation focal point of the North Shore. Its extensive boardwalk, beach and amusement area attract visitors from the northern New Jersey-New York City area.

Asbury Park

SOUTH SHORE REGION

The South Shore's entire coastline, measuring more than 376,000 feet, is open for public recreation although nearly 21% is privately owned.

Atlantic City, one of the most popular vacation resorts in the United States, actually is located on a sandbar four miles at sea, where nothing can be grown and no fresh water is available naturally. The skyscraper hotels are built on sand, and the amusement piers extend nearly one-half mile into the ocean. Atlantic City's famous boardwalk is spread over a million square feet and separates the commercial areas from the beach.

Wildwood's natural beach, which is perhaps the finest in the State, and its boardwalk stretching along the beachline draw many visitors from the Philadelphia area.

Estuarine Areas

At first glance, New Jersey's estuarine areas, marine wetlands and estuarine waters, appear as vast expanses of meaningless areas; but this is not so according to experts. They are food factories, "nursery" areas and breeding grounds for a seemingly endless variety of birds, animals, fish and crustaceans which are harvested by sportsmen and commercial fishermen.

It is estimated that there are about 400,000 acres of marine wetlands in the State. The wetlands stretch along the Atlantic Ocean coastal strip from Sandy Hook peninsula to Cape May and on the shores of Delaware Bay from Cape May to the tidal portions of the Delaware River.

There are over 390,000 acres of estuarine waters in New Jersey. This figure includes the tidal zones of rivers, portions of Raritan Bay (26,147 acres) and Delaware Bay (225,760 acres) within the State's boundaries, and bay areas lying behind the sandbar islands lining New Jersey's coast. Among the State's well known estuarine water areas are Barnegat Bay (44,036 acres), Little Egg Harbor Bay (21,349 acres) and Great Bay (10,125 acres).

As recreation resources, estuarine areas are important to the tourist industry of New Jersey's shore communities, offering a wide variety of activity opportunities. Recreationists use estuarine waters for boating, sailing, water skiing, fishing and shellfishing. The marine wetlands, while serving as essential resting, feeding and breeding areas for waterfowl throughout the year and especially during spring and fall migration, offer excellent waterfowl hunting.

Until the passage of the Wetlands Act of 1970, New Jersey lost thousands of acres of marine wetlands annually to residential and industrial development. The Wetlands Act authorizes the Department of Environmental Protection to regulate development with respect to ecological factors over the areas defined as wetlands in the Act. Implementation of the Act will go far in preventing further deterioration and destruction of this valuable fragile natural resource. (See Legislation and Related Actions Chapters.)

Pollution is yet another problem of the estuarine areas. At present, shellfishing is restricted on approximately 25% of the State's estuarine water surface area because of water pollution. However, as water pollution abatement programs on the rivers feeding into the bays become more effective, the water quality of the estuarine areas is expected to improve.

Lakes, Ponds and Reservoirs

Lakes, ponds and reservoirs in New Jersey vary in character. They range from those in rich, fertile basins which are suited for all forms of water-oriented recreation activities to those in barren clays and sands which are usually so acid that only a few forms of acid tolerant aquatic life can survive. Fortunately, most of New Jersey's lakes and ponds are located in the fertile areas close to most of the urban centers.

Lakes range in size from several acres up to the 2,440 acres of Lake Hopatcong. In general, ponds range in size from one-half acre to two acres or more; however, there are ponds exceeding 100 acres in size. This overlapping of size between what is called a lake or a pond is due to the lack of an accepted definition of size to differentiate these two resources.

Although most of New Jersey's reservoirs have been created for nonrecreational purposes such as water supply and agricultural irrigation, they can be used for recreation providing the proper facilities are developed. Reservoirs in New Jersey vary in size from several acres to the 2,350 acres of Round Valley Reservoir.

There are slightly over 50,000 acres of lakes, ponds and reservoirs in New Jersey. Although the distribution of this water surface acreage is uneven, no region contains less than 2,000 acres. (See map entitled "Major Lakes, Ponds and Reservoirs.") The regions with the highest concentrations of lakes, ponds and reservoirs are the North Central and Northwest. The 206 bodies of water in the North Central Region have a water surface of 17,519 acres while the Northwest's 191 water bodies have 12,468 acres of water surface. In the densely urbanized Northeast Region, there are over 5,300 acres of freshwater surface. (See Table 2.)

Although private interests own 629 of the 965 lakes, ponds and reservoirs reported for New Jersey, public agencies own 55% of the State's total freshwater surface area. Privately owned freshwater surface exceeds the publicly owned area in three regions: the Northwest, Central Corridor and Southwest.

Less than 40% of the State's total water surface area is open to the public for recreational use. In addition to the 19,418

TABLE 2: LAKES, PONDS AND RESERVOIRS INVENTORY 1970

Region & County	Existing Lakes, Ponds and Reservoirs		Lakes, Ponds and Reservoirs under Public Ownership				Lakes, Ponds and Reservoirs under Private Ownership					
			Total Publicly Owned		Public Recreational Use		Total Privately Owned		Public Recreational Use		Private Recreational Use	
	Number	Water Surface (Acres)	Number	Water Surface (Acres)	Number	Water Surface (Acres)	Number	Water Surface (Acres)	Number	Water Surface (Acres)	Number	Water Surface (Acres)
Northwest												
Hunterdon	9	3,707	3	3,636	3	3,636	6	71	0	0	1	24
Sussex	149	7,396	31	2,241	28	2,058	118	5,155	11	424	47	3,330
Warren	33	1,365	2	111	2	111	31	1,254	4	115	6	122
Regional Total	191	12,468	36	5,988	33	5,805	155	6,480	15	539	54	3,476
North Central												
Morris	133	10,433	40	6,798	20	3,581	93	3,635	4	202	28	2,076
Passaic	73	7,086	17	5,445	7	2,032	56	1,641	3	210	7	309
Regional Total	206	17,519	57	12,243	27	5,613	149	5,276	7	412	35	2,385
Northeast												
Bergen	38	3,119	21	2,779	15	158	17	340	0	0	2	163
Essex	14	756	9	686	4	119	5	70	0	0	1	21
Hudson	3	35	3	35	1	15	0	0	0	0	0	0
Passaic	18	1,163	6	25	2	11	12	1,139	1	17	3	318
Union	18	239	14	95	12	95	4	144	1	105	3	39
Regional Total	91	5,312	53	3,620	34	398	38	1,693	2	122	9	541
Central Corridor												
Mercer	15	424	5	75	4	61	10	349	5	273	1	18
Middlesex	26	1,265	15	638	12	611	11	627	4	367	1	58
Somerset	18	363	6	55	5	20	12	308	1	12	5	170
Regional Total	59	2,052	26	768	21	692	33	1,284	10	652	7	246
North Shore												
Monmouth	39	1,029	19	437	13	357	20	591	12	329	0	0
Ocean	47	1,718	29	1,092	23	907	18	626	5	179	6	281
Regional Total	86	2,747	48	1,529	36	1,264	38	1,217	17	508	6	281
Southwest												
Burlington	45	1,765	9	526	8	320	36	1,239	3	98	17	626
Camden	28	639	10	313	10	313	18	326	4	109	4	62
Gloucester	55	1,123	14	393	14	393	41	730	5	146	8	170
Regional Total	128	3,527	33	1,232	32	1,026	95	2,295	12	353	29	858
South Shore												
Atlantic	60	1,823	32	616	31	490	28	1,207	2	34	5	613
Burlington	16	543	16	543	3	198	0	0	0	0	0	0
Cape May	33	799	12	502	7	438	21	297	1	6	2	83
Ocean	4	129	3	113	3	113	1	16	0	0	1	16
Regional Total	113	3,294	63	1,774	44	1,239	50	1,520	3	40	8	712
Delaware Bay												
Cumberland	50	2,252	11	263	10	253	39	1,989	4	81	1	145
Salem	41	1,084	9	242	7	225	32	842	5	298	11	288
Regional Total	91	3,336	20	505	17	478	71	2,831	9	379	12	433
STATE TOTALS	965	50,255	336	27,659	244	16,515	629	22,596	74	2,903	160	8,932

TABLE 3: RESERVOIRS INVENTORY 1970

Region & County	Existing Reservoirs		Reservoirs under Public Ownership				Reservoirs under Private Ownership					
			Total Publicly Owned		Public Recreation Use		Total Privately Owned		Public Recreation Use		Private Recreation Use	
	Number	Water Surface (Acres)	Number	Water Surface (Acres)	Number	Water Surface (Acres)	Number	Water Surface (Acres)	Number	Water Surface (Acres)	Number	Water Surface (Acres)
Northwest												
Hunterdon	2	3,625	2	3,625	2	3,625						
Sussex												
Warren	4	520					4	520	1	11		
Regional Total	6	4,145	2	3,625	2	3,625	4	520	1	11		
North Central												
Morris	11	3,438	10	3,429	1	4	1	9				
Passaic	3	2,930	3	2,930								
Regional Total	14	6,368	13	6,359	1	4	1	9				
Northeast												
Bergen	4	2,437	4	2,437								
Essex	4	564	4	564								
Hudson	2	20	2	20								
Passaic	3	549	1	8			2	541				
Union	1	105					1	105	1	105		
Regional Total	14	3,675	11	3,029			3	646	1	105		
Central Corridor												
Mercer												
Middlesex												
Somerset	2	102	1	35			1	67				
Regional Total	2	102	1	35			1	67				
North Shore												
Monmouth	2	226					2	226				
Ocean	1	23	1	23								
Regional Total	3	249	1	23			2	226				
Southwest												
Burlington	1	60	1	60	1	60						
Camden												
Gloucester												
Regional Total	1	60	1	60	1	60						
South Shore												
Atlantic	2	147	2	147								
Burlington	12	270	12	270								
Cape May												
Ocean												
Regional Total	14	417	14	417								
Delaware Bay												
Cumberland	1	920					1	920				
Salem												
Regional Total	1	920					1	920				
STATE TOTALS	55	15,936	43	13,548	4	3,689	12	2,388	2	116		

acres of publicly used recreation water surface, there are 8,932 acres of water surface which are used privately for recreation.

The 16,515 acres of publicly owned water surface which is used for recreational purposes amounts to slightly less than 60% of the total publicly owned water surface. Privately owned water surface open to the public for recreation amounts to 2,903 acres and accounts for only 13% of the sector's supply.

TABLE 4: MAJOR RESERVOIRS (over 150 acres)

Region/County	Name	Ownership	Water Surface (Acres)	Open for Public Recreation
Bergen	Lake Tappan Res.	Public	550	
	Oradell Res.	Public	620	
	Riverdale Res.	Public	1,255	
Cumberland	Union Lake	Private	920	
Essex	Canoe Brook Res. #1	Public	239	
Hunterdon	Round Valley Res.	Public	2,350	X
	Spruce Run Res.	Public	1,275	X
Morris	Boonton Res.	Public	780	
	Charlotteburg Res.	Public	375	
	Longwood Valley Res.	Public	1,000	
	Oak Ridge Res.	Public	415	
	Splitrock Res.	Public	640	
Passaic	Clinton Res.	Public	423	
	Oak Ridge Res.	Public	197	
	Point View Res.	Private	513	
	Wanaque Res.	Public	2,310	
Sussex	Canistear Res.	Public	350	
Warren	Lower Res.	Private	300	
	Upper Res.	Private	164	

New Jersey's 55 reservoirs have a total water surface area of 15,936 acres. (See map entitled "Major Reservoir Sites Existing, Potential & Lost.") The great majority of the State's reservoirs have been developed in the northern area to supply the water required by the heavily urbanized areas of northeastern New Jersey. The North Central Region has the largest reservoir surface area, 6,368 acres, the Northwest Region has the next, 4,145 acres, and the Northeast Region follows with 3,675 acres. The reservoir surface area in these regions totals 14,188 acres or 89% of the State's total reservoir surface area. (See Tables 3 and 4.)

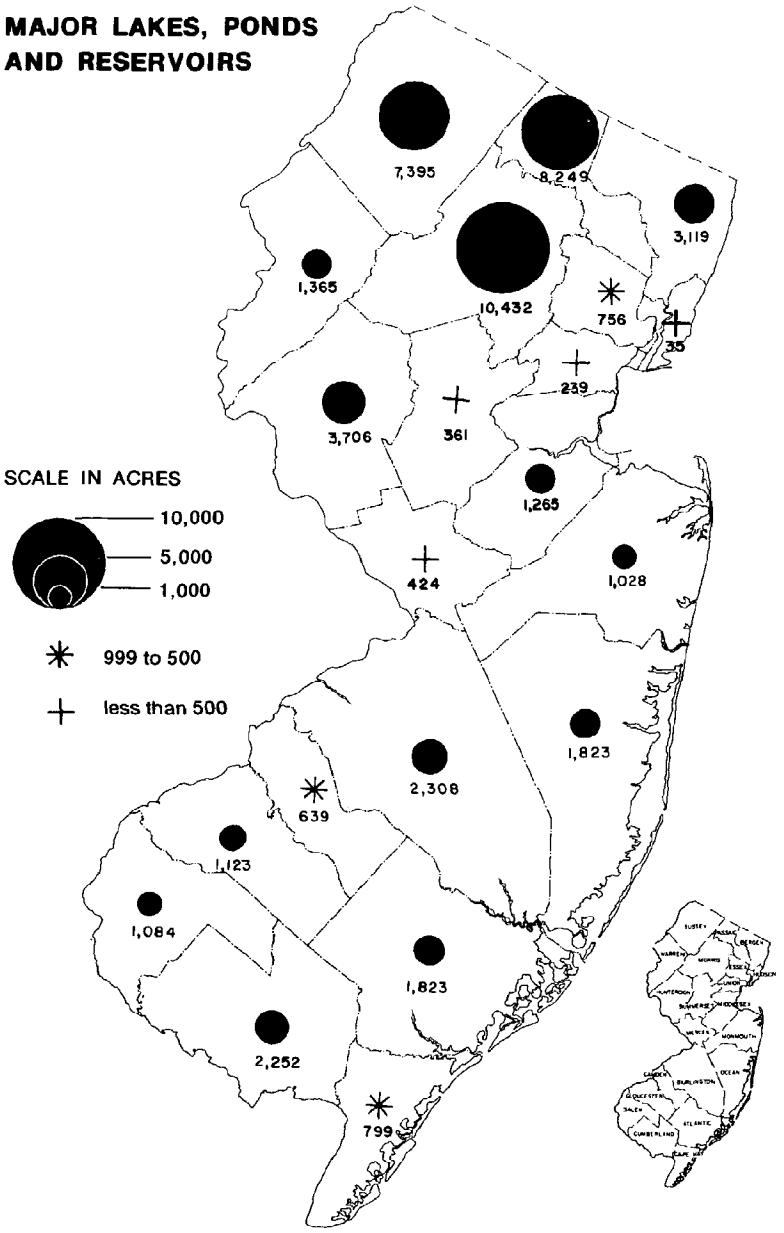
The vast recreational potential of New Jersey's reservoirs has been only partially realized. Less than 4,000 acres of reservoirs are open for public recreation. Private reservoirs offer recreational opportunities on only 116 acres of water while their water surface area amounts to 2,388 acres. Of New Jersey's publicly owned reservoir area of 13,548 acres, 3,689 acres are used for recreational purposes. The two reservoirs constructed by the State under its multi-use concept account for 3,625 acres of the public reservoir recreation water surface. Both of these reservoirs, Round Valley and Spruce Run, are located in the Northwest Region.

PROPOSED RESERVOIRS

Over 26,300 acres of water surface could be added to the State's recreation supply by the construction of the seven planned state reservoirs and the conservation pools proposed in the three U.S. Corps of Engineers flood control projects. At this time it is impossible to predict the future of many of the proposals, particularly in regard to the three federal projects, the Tocks Island Dam Project, the Passaic River Flood Control Program, and the Crab Island Tide Dam on the Lower Raritan River.

The State's reservoir site acquisition program is financed through funds authorized by the Water Resources Bond Act of 1969. At present two sites are in the acquisition stage: Six Mile Run (754 acres) in the Central Corridor Region and Manasquan (15 acres) in the North Shore Region. Land acquisition for three

MAJOR LAKES, PONDS AND RESERVOIRS



other sites will be underway shortly, while action on the two remaining sites has been deferred.

Ultimately, 8,960 acres will be added to the State's recreational water surface by the completion of all seven of the proposed state reservoirs. On a shorter range basis, the five scheduled reservoirs will increase the State's recreational water supply by 3,810 acres. Within the near future, approximately 1,300 acres of water surface acres will be created in the North Central Region, 860 acres in the North Shore Region, 1,650 acres in the Central Corridor Region and 350 acres in the Northwest Region.

In the Tocks Island Dam Project, a 12,425 acre lake formed by a dam stretching across the Delaware River at the northern tip of Tocks Island is proposed. The 37 mile long reservoir would be in the center of the Delaware Water Gap National Recreation Area and be used for water supply, flood control, hydroelectric and recreational purposes.

Five alternative development plans for the Passaic River Flood Control Program have been prepared by the U.S. Corps of Engineers. Each alternative has been designed to reduce the flood damage potential of the river in the urbanized sections of the North Central, Northeast and Central Corridor regions and provide for at least one multiple use conservation pool.

Under the U.S. Corps of Engineers' proposal for the Crab Island Tide Dam on the Lower Raritan River approximately 1,900 acres of recreational water surface will be created. Plans for this multiple use project in the Central Corridor Region call for swimming, boating, fishing, camping, and hiking facilities.

MAJOR RESERVOIR SITES—EXISTING, POTENTIAL & LOST

EXISTING RESERVOIRS

ER- 1 ORADELL
ER- 2 WOODCLIFF LAKE
ER- 3 RIVERVALE
ER- 4 DE FOREST
ER- 5 CANISTEAR
ER- 6 OAK RIDGE
ER- 7 CLINTON
ER- 8 CHARLOTTEBURG
ER- 9 ECHO LAKE
ER-10 APSHAWA
ER-11 KIKEOUT
ER-12 WANAQUE
ER-13 POINT VIEW
ER-14 LONGWOOD VALLEY
ER-15 SPLITROCK
ER-16 BOONTON
ER-17 CLYDE POTTS
ER-18 COMMONWEALTH
ER-19 ORANGE
ER-20 MIDDLESEX
ER-21 SPRUCE RUN
ER-22 ROUND VALLEY
ER-23 LAWRENCE BROOK
ER-24 SWIMMING RIVER
ER-25 JUMPING BROOK
ER-26 GLENDOLA
ER-27 NEWTON

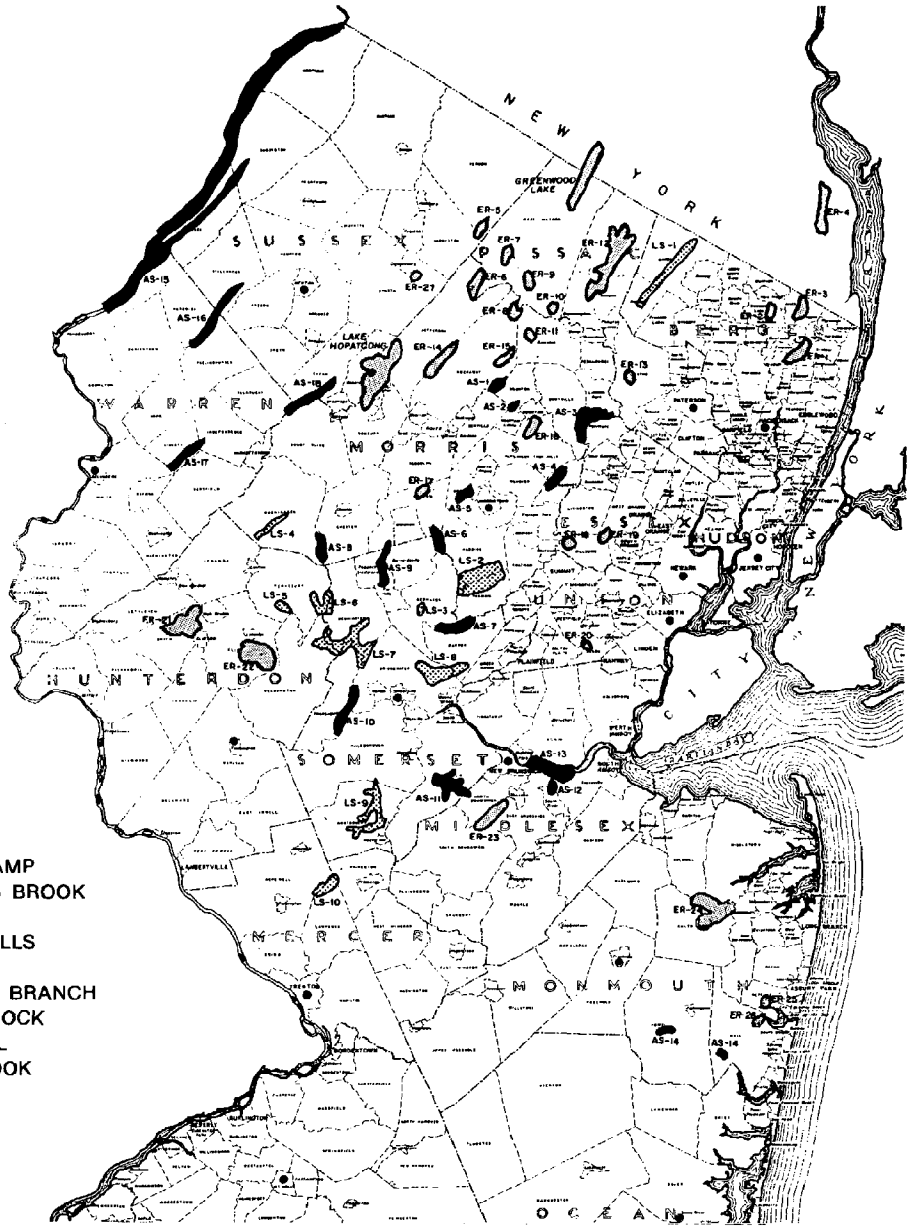
AVAILABLE SITES

AS- 1 COMO
AS- 2 TOURNE
AS- 3 TWO BRIDGES*
AS- 4 WHIPPANY
AS- 5 WASHINGTON VALLEY
AS- 6 HARDSCRABBLE
AS- 7 LOWER MILLINGTON
AS- 8 HACKLEBARNEY
AS- 9 RAVINE LAKE
AS-10 RARITAN CONFLUENCE*
AS-11 SIX MILE RUN*
AS-12 SOUTH RIVER*
AS-13 CRAB ISLAND
AS-14 MANASQUAN*
AS-15 TOCKS ISLAND
AS-16 PAULINA
AS-17 PEQUEST
AS-18 HACKETTSTOWN*

LOST SITES

LS- 1 RAMAPO
LS- 2 GREAT SWAMP
LS- 3 HARRISONS BROOK
LS- 4 BUNNVALE
LS- 5 McCREA MILLS
LS- 6 OLDWICK
LS- 7 BIG NORTH BRANCH
LS- 8 CHIMNEY ROCK
LS- 9 ROCKY HILL
LS-10 STONY BROOK

*Proposed State Reservoirs



V NEEDS: OPEN SPACE, WATER RESOURCES, FACILITIES

Open Space

As the rapid urbanization of New Jersey continues and leisure time increases, open space will play an increasingly important role in maintaining a desirable living environment for the residents of the State. Even though the supply of potential open space will decrease considerably in the future under the growing pressure for development, the State's expanding population will require more public open space to satisfy its recreational desires. Along with the growing recognition of the problems of preserving open space, there exists a widespread acceptance of the fact that the problems will have to be solved through governmental planning and actions.

Not only is open space the basic resource for recreation facility development, it also performs other worthwhile functions, often concurrently. Open space can create breathing spaces in densely settled areas, shape urban growth, protect natural resources, preserve distinct architectural, historic, geologic and botanic sites, and preserve natural beauty near urban and suburban development. It is virtually impossible to assign priorities to these functions because the type of open space appropriate to the highly developed urban areas is different from the type of open space suitable to rural areas.

ROLES AND RESPONSIBILITES

The promotion of the public welfare is the primary objective which all levels of government share in the development of park and recreation areas and in the protection and preservation of natural resources. Each of the various levels of government must assume its "share" in different proportions and must fulfill its responsibilities in a different manner.

As a general rule of thumb, the higher the level of government, the greater the percentage of open space holdings that should remain relatively undeveloped and held for conservation

purposes and preservation of the environmental integrity. Conversely, the lower the level of government, the greater the percentage of open space developed for more intensive recreational use.

A second general point with regard to the functional differences among the various levels of government in the sharing of open space responsibilities relates to the size of the parcels provided. Each successive level of government, in ascending order, must assume a greater responsibility for providing larger areas of open space. This follows logically from the first point. At the local level, it is possible to provide for family intensive recreational activities on relatively small parcels. At the county level, the types of facilities provided suggest that larger parcels would be required to accommodate these activities. At the state and federal levels, where a greater emphasis is placed on natural or wilderness areas, much larger holdings are required to adequately meet these responsibilities.

A final general point relates to the problems of time, travel distances and means of transportation. Local parks, ideally, should be within easy access of the people served, preferably within walking distance. County recreational areas should be located to maximize their accessibility. State parks, although more remote, should be spaced so that all people living in urban concentrations are within 30-45 minutes of adequate state facilities, assuming easy flow of traffic.

QUANTITATIVE OPEN SPACE GUIDELINES

As part of the inventory stage of the Statewide Planning Program, a study entitled "Park and Recreational Land Use in New Jersey" was conducted to examine existing population standards to formulate suitable and realistic open space recreation guidelines for New Jersey. The guidelines used in the present plan (see Table 1) are based on the findings of this study, published in the *Open Space Policy Plan*, prepared for the State of New Jersey by the Division of State and Regional Planning, Department of Community Affairs.

The application of existing recreation standards to New Jersey is extremely difficult because of the great variety and extremes of land use found in this State. In addition, none of the systems analyzed in the study (National Recreation Association, Athletic Institute, National Park Service and Regional Plan Association) covered the entire range of governmental responsibility. Consequently, guidelines have been developed which combine the most appropriate features for New Jersey. In the following paragraphs, the guidelines and their derivation for each jurisdiction are discussed. It must be noted that the proposed guidelines, while valid for establishing responsibilities on a statewide basis, are not necessarily realistic for defined areas such as municipalities with high population densities.

TABLE 1: OPEN SPACE GUIDELINES FOR NEW JERSEY

Level	Acres Per Thousand
Municipal	8
County	12
State	24
Federal	16
	60 acres

FEDERAL LEVEL

The traditional responsibility of the federal level has been the maintenance of a recreational open space system embracing areas and sites of national interest and concern. These areas have been acquired where they occur regardless of their proximity to urban concentrations or user accessibility. However, the emerging development pattern of the northeast seaboard has necessitated the Federal Government expanding its responsibilities to include providing sizable recreation areas in close proximity to large urban complexes of high population density.

A guideline of 16 acres per 1000 population is proposed for the federal level. This guideline was derived by the Division of State and Regional Planning by modifying the National Park Service standard to fit the needs of New Jersey.

STATE LEVEL

The State's primary responsibility as administrator of large amounts of open space reflects its fiscal capabilities and its designated duties concerning conservation, water management, major supplier of those outdoor recreation activities—hunting, fishing, camping—which require extensive lands for enjoyment, and as the public's guardian of spectacular natural features such as the Delaware Water Gap.

Several studies have shown that it would be feasible to reserve at least 10% of New Jersey's land, or 480,000 acres, under the State's jurisdiction at the horizon population level of 20 million people predicted by the Open Space Policy Plan. When this percentage of land is translated into an acreage per population guideline, a guideline of 24 acres per 1000 population is indicated and appears quite reasonable for New jersey.

COUNTY LEVEL

Large natural wooded or conservation areas, resembling regional parks, are being provided by the county along with a more intensively developed system of parks, public golf courses, and areas for picnicking, swimming, boating, etc. These areas serve the needs of several communities but are less than regional in scope.

Various nationally recognized standards agree that a minimum of 10 acres per 1000 population should be provided at the county level. In the next section, which discusses the municipal level, an additional 2 acres per 1000 is transferred from the municipal level resulting in a guideline of 12 acres per 1000 at the county level.

MUNICIPAL LEVEL

Municipal open space responsibilities can generally be described as (1) the provision of conveniently located areas which allow the interaction of people from nearby neighborhoods and schools of the community, (2) the preservation of natural buffers separating incompatible uses such as industries and busy roads from residential areas, and (3) the use of natural elements to beautify the community and create a unifying natural character.

A reasonable acreage guideline for recreation areas at the local level most closely fitting the needs of New Jersey is 8 acres per 1000 inhabitants. This figure was strongly influenced by the thinking of both the National Recreation Association and the Regional Plan Association. The 10 acres per 1000 guideline advanced by the National Recreation Association was found to be an unrealistic goal for the highly developed urban areas of New Jersey. For this reason, only recreational areas within close proximity to their user population are included in the modified guideline of 8 acres per 1000. The remaining 2 acres per 1000 population, which are usually in large parks and natural areas, were transferred from the municipal level to the county level. The concept of transferral is an adaptation of the Regional Plan Association method but modified in that the transfer is aimed at the county systems and not at the other lower density municipalities.

OPEN SPACE NEEDS

Even though publicly owned open space has increased substantially in recent years, more must be added now and in the future to accommodate the growing needs of the State's population. Increasing land values, fast disappearing vacant land, and the intense competition for land in both urban and suburban areas of New Jersey require that potential recreation areas be acquired now or be lost forever to other public and private uses.

To create workable comprehensive recreation program, recreation needs in terms of open space land requirements were defined so that regional and jurisdictional priorities could be established. In determining general open space recreational needs on a regional basis for the study years of 1970, 1985 and 2000, the jurisdictional guidelines expressed in acreage per population ratios were applied to the regional population data to arrive at land requirements which were then compared to the 1970 supply.

New Jersey's present supply of public open space, although amounting to 473,685 acres, is not sufficient; statewide deficits at every governmental level amount to 246,952 acres. By 1985, this total deficit will grow to 308,072 acres without additional public acquisition. To meet the needs of the State's population in the year 2000, 381,175 acres will have to be provided in addition to the 1970 supply. (See Tables 2 and 3.)

Federal—Statewide, the Federal level's open space deficit amounts to 40,779 acres. This deficiency will grow to 55,489 acres by 1985 and to 73,543 acres by the year 2000 without future acquisition.

State—The present state open space land deficit of 116,579 acres occurs in two regions, the Northeast and Central Corridor. Deficits of state owned open space are expected to grow to 134,428 acres by 1985 and 160,384 acres by 2000.

County—Deficits in county open space occur in all planning regions and total 48,708 acres. By the year 2000, the deficiency is projected to grow to 83,627 acres.

Municipal—There are shortages of municipally owned open space in every region amounting statewide to 40,886 acres. Without future acquisition, this deficit will reach 63,621 acres by the year 2000.

TABLE 2: OPEN SPACE RECREATION LAND NEEDS BY REGION[1] (acres)

Region	1970	1985	2000
Northwest	5,336	6,524	8,161
North Central	4,418	7,853	12,081
Northeast	157,280	189,149	217,885
Central Corridor	41,171	50,185	71,858
North Shore	13,322	19,134	25,862
Southwest	19,020	26,545	35,059
South Shore	3,811	5,113	6,706
Delaware Bay	2,584	3,569	3,563
State Totals	246,952	308,072	381,175

TABLE 3: OPEN SPACE RECREATION LAND NEEDS BY JURISDICTION (acres)

Jurisdiction	1970	1985	2000
Federal[2]	40,779	55,489	73,543
State	116,579	134,428	160,384
County	48,708	65,721	83,627
Municipal	40,886	52,434	63,621
State Totals	246,952	308,072	381,175

[1]Federal deficit was apportioned according to each region's percent of the total state population.

[2]Federal supply includes the Palisades Interstate Park (2430 acres) in the Northeast Region.

DISTRIBUTION OF OPEN SPACE NEEDS

The table illustrating general land needs (Table 2) depicts the total deficits in open space acreage by region. There was no attempt to balance the open space surplus in one region against the open space deficiency in another region. However, a regionally oriented approach to the provision of open space recreational land has its drawbacks, vis-a-vis a statewide approach. New Jersey's urban regions, particularly the Northeast, are hard pressed for land for development and cannot provide enough open space to accommodate their population. On a statewide basis, consideration of New Jersey's small size and short travel time between regions permits the development of recreational facilities to accommodate residents in nearby regions. Thus, the dedication of open space in one region does affect other regions.

However, because natural beauty and open space should be part of every man's environment, every region should have a sufficient amount of open space set aside to provide visual beauty and a place near at hand for outdoor recreation participation for children, the working adult on a weekday night, and the poor, underprivileged, elderly and handicapped who are restricted in mobility.

Also, natural resources determine the location of recreation facilities for various activities. Since each region varies in the types of natural resources suitable for recreation, a strictly regional approach to open space for recreational use must be

modified to take this into account. Sites of special quality and high recreation attractiveness must be viewed on a statewide basis since people will be drawn from all regions.

Similarly, an open space surplus supplied by one level of government in a region was not balanced against deficiencies at other levels of government in the same region. The acquisition of extensive tracts of land by the State Government in a given region might appear to be more than adequate when acreage per population and balanced land use standards are applied, but fails to reflect the different open space responsibilities of each governmental level.

Thus, each level of government in a region should consider dedicated open space equally as important as other land uses. An excess of open space land in the form of a vast state park ten miles from a municipality cannot replace the need for an open space area in the center of town where members of the community can meet and relax or where school age children, unable to travel long distances, can play.

REGIONAL ANALYSIS

Open space recreational land needs are severest in the State's highly urbanized regions while they are comparatively slight in the characteristically rural regions. (Refer to Table 2.) This relationship becomes particularly significant when one considers the correlation of intensity of development to the declining availability of suitable open space for public acquisition.

NORTHEAST REGION

This region, with nearly 50% of New Jersey's population, has the State's greatest open space deficit. Deficiencies in the provision of open space recreational lands exist at all levels of government and amount to 157,280 acres, accounting for 63% of the State's total deficit. The projected 1985 deficit of 189,149 acres will reach 217,885 acres by the year 2000 if additional public acquisition is not undertaken.

By far the greatest need in this region is for state provided open space since the deficiency at this level amounts to 91,561. The 21,733 acres of open space recreational land provided at present by the region's counties and municipalities satisfies only 32% of the local level responsibilities.

The potential for the expansion and acquisition of open space in the Northeast Region is limited by the high degree of urbanization and intense competition for land. Because of these factors, intensive development of high use recreational facilities can be expected at the local level. At both the federal and state levels, top open space priority will be given to the acquisition and preservation of natural areas threatened by encroaching urbanization and areas for intensive recreational use within the urban setting.

CENTRAL CORRIDOR REGION

At all levels of government there is a critical need for open space land acquisition to offset the region's deficit of 41,171 acres. The Central Corridor Region is experiencing rapid urban and suburban growth and consequently the region's open space deficit will reach 71,858 acres in 2000—nearly double the 1970 need.

State acquisition is sorely needed in this region since the present state supply falls short of adequacy by 25,018 acres. On the local level, counties and municipalities should provide 9,995 additional acres to meet present requirements.

Public open space acquisition should receive a high priority in this region so that potential open space will not be lost permanently to development. If action is not taken within the very near future, the Central Corridor will face the same problem as the Northeast: insufficient land resources to meet the region's needs.

SOUTHWEST REGION

At present, an open space recreational land deficit of 19,020 acres exists at the county and municipal level in the Southwest Region. This need is centered primarily along the intensively developed areas bordering the Delaware River. The region's growing population will create an open space land deficit amounting to 35,059 acres by the turn of the century. Unlike other urban regions in New Jersey, the Southwest has an excess of state owned open space; all of this land is located in the sparsely populated "Pine Lands."

NORTH SHORE REGION

In this region, the present open space deficiency amounting to 13,322 acres occurs at all governmental levels except the State. The continuance of suburban growth caused by the outward expansion from the heavily populated regions of northern New Jersey is expected to transform the North Shore Region, once a tourist oriented area, into a year-round residential region with a 2000 population exceeding one million people. This transition will result in the region experiencing a need for 25,862 acres of open space by the year 2000. As with the Southwest Region, the open space deficiency is most acute at the local level where 9,611 acres are required to meet the current needs.

Noteworthy is the fact that most of the region's supply is concentrated along the ocean and there is a need to acquire open space to serve other than water oriented recreational activities. In addition, a great majority of the State's holdings are fishing and hunting grounds which allow for a limited variety of activities, and a need exists for expansion of state recreation areas to serve both resident and tourist needs.

NORTHWEST, NORTH CENTRAL, SOUTH SHORE AND DELAWARE BAY REGIONS

In contrast to the urban regions of New Jersey, the rural regions of the Northwest, North Central, South Shore and Delaware Bay show limited open space deficits; however, the determination of open space adequacy in these regions cannot be judged solely by acreage-to-population guidelines since these may be misleading when other factors are not considered. Guidelines based on resident population fail to evaluate the impact of transient populations, to incorporate the unique natural features of these sparsely settled regions for recreation opportunities, to consider the functions of open space in water resource management and the other special functions of open space.

Because of their unique natural resources, the South Shore and North Shore regions and, to a lesser degree, the Northwest Region attract a very high seasonal population seeking opportunities for recreation. These areas are in demand not only by New Jersey residents but also by residents of New Jersey's RSI, particularly Philadelphia and New York. In these regions, there exists a need to provide more open space than acreage-to-population guidelines indicate in order to accommodate this transient population and to maintain the natural character essential to the setting of outdoor recreation.

Though surpluses of open space, based on the foregoing criteria, are indicated at the state level in the Northwest and North Central regions, a critical need exists for even more dedicated open space there to perform the essential functions of watershed management and preservation of water storage areas serving the urbanized regions of northern New Jersey. Similarly, although there are vast amounts of state owned land functioning as aquifer recharge basins and wildlife and fish habitats in the North Shore, Southwest, South Shore and Delaware Bay regions state holdings should be expanded further to protect these essential resources in their entirety and permit their proper management.

Water Resources

NEEDS, PROBLEMS AND POTENTIAL

Water is a key factor in outdoor recreation activities described as water-based, such as swimming, boating, and fishing. Other activities, although not actually requiring water as a resource, are greatly enhanced by its presence; camping and picnicking are examples of such activities.

In the water resources supply section, 50,000 acres of fresh water, 6,448 miles of streams and rivers, 127 miles of Atlantic coastline and 390,000 acres of estuarine waters were reported as potential recreational water resources for the State. Yet, the results of the regional developed facility analysis indicate that regional facility deficits exist for three of the four water-based activities examined. (See Table 4.) Swimming, fishing and boating showed a combined statewide facility deficiency of 55,152 people. According to the demand projections, the water resources now available for natural ice skating will be insufficient by 1985 in two regions.

In this section, the recreational potential of each region's water resources is examined in relation to present and future regional recreational demands for water-based activities, and the apparent reasons contributing to facility deficits are cited. It was necessary to restrict the activities studied to the four water-based activities analyzed in the regional needs study — swimming, boating, fishing, and natural ice skating — because of the availability of data and the ability to convert facility deficits to water resource requirements.

Analyzing the potential of the supply reported in the Supply of Water Resources Chapter to satisfy the facility deficits derived for the four water-based activities is complicated by several factors: the location of demand in relation to the distribution of supply, the types of recreation experiences provided by the various water resources, and the degree of public access to reported recreational water resources. By evaluating each of these elements, a greater understanding of the nature of facility needs is gained. In some instances, an analysis of these influences makes it apparent that the facility surpluses or deficits shown in the regional analysis are not necessarily representative of individual subregions nor of the need for specific types of facilities.

The methodology used in the determination of regional facility needs did not take the demand location factor into account; the supply and demand for an entire region was compared. Since there are demands generated by a region's residents for close-to-home swimming, fishing, boating and ice skating opportunities, an evaluation of the adequacy of a region's facility supply to meet the demand for one of these activities should consider the distribution of the supply within the region. Obviously, facilities located in one section of a region will not satisfy the close-to-home demands of residents

of another section. Thus, in regions with apparent facility surpluses there may be pockets of unmet demand. In the two shore regions, for example, there are ample swimming opportunities available in the bays and along the Atlantic beaches. However, these resources are not close enough to meet the total swimming demand of residents of the interior communities and therefore additional facilities should be provided in these communities.

Because the various water resources—freshwater lakes and ponds, bays, rivers and streams, and the Atlantic Ocean—provide distinctly different fishing, boating and swimming experiences, people have preferences regarding the experiences associated with each resource. Therefore, to properly analyze a region's water resource supply in terms of recreation demand, the composition of the supply must be studied. This is particularly applicable to the two shore regions where there are abundant bay and ocean opportunities along the coastal zone. These resources are capable of satisfying most of the regions' away demands and substantial portions of the home demands. Still, the remaining demands for the freshwater boating, fishing and swimming opportunities and pool swimming experiences should be recognized and given the proper attention.

Recreational use of a water body is determined to a great extent by its accessibility, the ability of potential users to reach the resource and then to use it for the desired activity. A problem is encountered when using the supply information reported in the lakes, ponds and reservoirs inventory because the accessibility of water bodies reported as open for general public recreational use was not indicated. A lake or pond, for example, may be open for general public recreational use but accessible only by foot; thus, the type and quantity of equipment which may be used by the recreationists is limited to that which can be carried. In such cases, the resource is not available for most types of boating use. In addition, specific facilities are required to make water resources accessible for many recreation activities, e.g., beaches for swimming.

For the purposes of this analysis, the lack of access to available recreational water resources was assumed to be a significant factor contributing to a region's water-based facility

TABLE 4: FACILITY CAPACITY DEFICITS FOR WATER-BASED RECREATION ACTIVITIES (Recreation Days on an Average Weekend Day in the Peak Season)

Region/Year	Swimming	Boating	Fishing	Natural Ice Skating
Northwest				
1970		2,559		
1985		9,181		
*2000	37,528	8,470		
North Central				
1970		3,113		
1985		15,356		
2000	28,281	15,240		
Northeast				
1970	9,675	22,110		
1985	61,653	12,094	500	3,774
2000	80,010	7,110	5,400	153,800
Central Corridor				
1970		7,211	1,795	
1985	12,901	14,511	4,076	
2000	51,200	10,700	4,240	
North Shore				
1970				
1985		9,336		21,466
2000		29,680		59,100
Southwest				
1970		2,686		
1985		9,886		
2000	25,526	10,400		
South Shore				
1970		6,003		
1985		30,168		
2000		33,710		
Delaware Bay				
1970				
1985				
2000		2,500		
State Totals				
1970	9,675	43,682	1,795	
1985	74,554	100,532	4,576	25,240
2000	222,545	117,810	9,640	212,900

*In determining the facility deficits for the year 2000, it was assumed that the 1985 deficits had been satisfied.

deficits when sizable discrepancies were noted between the lakes, ponds, and reservoirs inventory reported recreational water surface acreage, and the supply of water-based facilities reported by the jurisdictions providing recreation. This assumption is based upon the feeling that jurisdictions only reported as existing recreation supply, water bodies which have adequate public access. Areas closed to recreational use, whether privately or publicly owned, are considered legally inaccessible in the study.

REGIONAL ANALYSIS

NORTHWEST REGION

The Northwest Region has been richly endowed with natural water resources. In addition to the region's 185 lakes and ponds totaling over 8,000 acres of water surface, there are 6 reservoirs providing a total of 4,145 acres. There are also many high quality streams and rivers flowing through the region.

At present, the Northwest's demand for water-oriented activities, except boating, is being met by the existing supply. The 1970 boating need of 2,559 people will reach 9,181 people by 1985. By the turn of the century, the region's existing supply of facilities will fail to meet the region's demands for swimming by 37,528 people and for boating by 17,651 people.

Apparently, the Northwest's water resources are sufficient to meet the needs if their potential is fully realized. There are several factors, however, which at present tend to inhibit such utilization. Ownership and the lack of access are the two primary factors, and in the case of boating, the size of individual water bodies.

The private sector owns nearly 6,500 acres of water surface and yet little more than 500 acres of this total is open to the public for recreational use. Another 3,500 acres of the private sector's supply is used for private recreational use.

While the Northwest Region has over 5,988 acres of publicly owned recreational water surface, the region's various jurisdictions providing recreation facilities reported only 2,507 water surface acres as boating supply. Part of this discrepancy can be attributed to the fact that many of the region's water bodies are smaller than the minimum size necessary for boating use. Still, the magnitude of the discrepancy indicates that many of the region's resources are inaccessible because of the lack of physical access and adequate facilities.

To provide the swimming opportunities to meet the Northwest's future needs, beaches should be developed by the public and private sectors to make the region's resources accessible. At the municipal level, swimming pools should be constructed to satisfy the close-to-home demand for opportunities.

Physical and legal access to the region's water resources would meet the Northwest's present and future unmet demands for boating. Public agencies should construct access roads and ramps for greater use of their resources and the private sector should be encouraged to open their resources to the general public.

NORTH CENTRAL REGION

The North Central Region leads the State in freshwater surface area with 17,519 acres. Lakes and ponds account for 11,151 acres while reservoirs account for the remaining 6,368 acres. The public sector owns a little more than half of the region's lakes and ponds water surface and all but one of the North Central's fourteen reservoirs.

Although the North Central Region has a copious supply of water resources it has a present unmet demand for boating opportunities of 3,113 people which will increase to 30,596 people by the year 2000. By the turn of the century, the region will also need additional swimming facilities to accommodate 28,281 people.

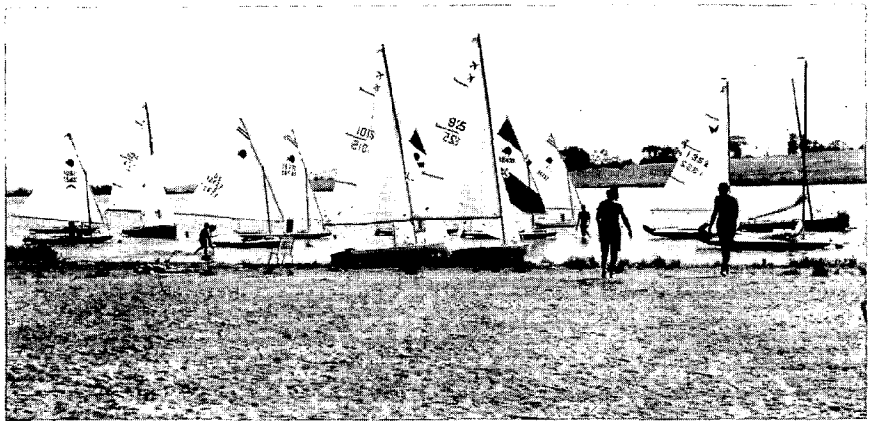
Like the Northwest Region, the North Central Region possesses sufficient water resources to meet its present and future requirements. Mutiple use of reservoirs and greater public use of privately owned resources will be necessary, however, to meet the region's growing needs.

The recreational potential of the region's reservoirs is tremendous; however, to date, little has been done to tap this resource. In this region with 6,368 acres of reservoirs, 6,359

of which are publicly owned, more reservoir acreage could be opened for recreation than just the 4 acres currently available.

While the private sector accounts for over 5,000 water surface acres, it provides only 412 acres for public recreation. Greater public use of private resources is necessary.

Full utilization of the North Central's existing water resources and the proposed state reservoir (1,300 acres) will alleviate the region's present and future boating needs and most of the region's future swimming needs. The remaining portion of the region's swimming needs should be met at the local level through the provision of swimming pools and beaches within easy reach of urban residents.



NORTHEAST REGION

The Northeast Region's existing freshwater surface acreage is sizable, 5,312 acres; but its recreational potential falls far short of accommodating the region's year 2000 projected demands for boating, fishing, and swimming. As the State's most populous region, the Northeast shows the greatest present and future home demands for water-oriented activities.

Though reduction of the factors presently limiting recreational use of the Northeast's water resources—the reluctance on the part of public and private owners to open their resources for public recreation and the unsuitable water quality of many resources for certain recreation activities—would lower the Northeast's 1985 facility needs for swimming, boating and fishing, much of the region's demands for these activities will have to be met outside of the region. Discounting the demands which will be satisfied in other regions, the Northeast will still have unmet demands by 1985 for swimming, boating and fishing amounting to 61,653, 12,094 and 500 people, respectively. By the year 2000, the region's unmet demands will reach 141,663 people for swimming, 19,204 people for boating and 5,900 people for fishing without additional facility development.

Although faced with an enormous projected natural ice skating deficit of 157,574 people by the year 2000, the Northeast can satisfy this need through better utilization of its existing natural resources. In terms of facilities, the local jurisdictions must provide 217 acres of water surface by the turn of the century.

At present, only 520 acres of lakes, ponds and reservoirs in the region are available for public recreational use. Of the Northeast's total reservoir surface area of 3,675 acres, only 105 acres, all of which are privately owned, are used for recreation. In this region where there is a critical need for recreational water surface, the virtual non use of reservoirs is an extravagance which can be ill afforded. It is appreciated, however, that the reservoirs are operated for water supply purposes and that infrequent drawdowns will limit utilization of these facilities for recreational purposes.

Under current plans, the water quality of most of the Northeast's rivers and drainage basins will be upgraded to the point of permitting contact recreational use. Elimination of water pollution as a primary limiting factor in the use of the region's water resources will contribute significantly to the Northeast's potential supply of facilities for water-based activities.

If the federal flood control proposal for the Passaic River is adopted, one or two major conservation pools, large portions of which will be in the Northeast Region, will be formed, creating up to 7,600 acres of water area. This water surface will have the potential to alleviate a substantial portion of the region's future water activity needs.

CENTRAL CORRIDOR REGION

The Central Corridor's water resources totaling 2,052 surface acres consist of 57 lakes and ponds with 1,950 acres and 2 reservoirs totaling 102 acres. At present, the recreational use of many of the region's rivers and streams is restricted by water pollution; however, most of the Central Corridor's water resources are scheduled for upgrading programs which will improve water quality to a level acceptable for most forms of recreation.

The majority of the Central Corridor's water surface, unlike that of many regions, is open for public recreational use. This amounts to 1,344 acres. However, there is a considerable gap between this figure and the supply of boating and fishing water acreage reported by the various jurisdictions indicating a general lack of access to the available water bodies.

A sizable boating facility deficit exists at present; the region's facilities are unable to accommodate 7,211 people who desire boating opportunities on an average weekend day during the peak season. This present unmet boating demand will increase to 14,511 people by 1985 and soar to 25,211 people by the year 2000. A need for fishing facilities also exists. The present fishing facilities deficit of 1,795 people will grow to 4,076 people by 1985 and to 8,316 people by the turn of the century.

Though the existing facilities appear sufficient to accommodate the region's swimming demand, except in the highly urbanized cities, they will fall far short of accommodating the 1985 demand by 12,901 people and the 2000 demand by 64,101 people. Without the development of additional swimming facilities, the unmet 2000 demand for swimming will rank highest among the region's thirteen outdoor recreation activities analyzed in the developed facilities needs study.

The Central Corridor's existing water resources have the recreational potential to satisfy a substantial portion of the region's present and future swimming and fishing needs and a significant part of the boating needs. But to take advantage of this potential, adequate access must be provided to both publicly and privately owned areas. Facilities such as boat ramps and swimming beaches must be developed, and the water quality of the polluted resources must be upgraded to acceptable levels. Swimming pool development in the urban areas will be necessary to satisfy the demand generated by city residents for close-to-home opportunities.

Most of the Central Corridor's future water activity needs will be satisfied by the construction of four state and federal water supply or control projects. Approximately 1,650 acres of recreational water surface will be created by the two state reservoirs programmed for the region. In addition, the U.S. Corps of Engineers' proposed Crab Island Dam on the Lower Raritan River would add 1,900 acres to the region's water surface. Also, portions of the conservation pools planned in the federal flood control proposal for the Passaic River will extend into the northern section of the region.

NORTH SHORE REGION

Opportunities for water-based recreation abound along the North Shore's Atlantic coastline. Fishing, boating, shellfishing, and water skiing are among the many activities enjoyed on the region's bays. Recreationists can also walk along the North Shore's fine beaches or swim in the surf. Besides the region's abundant saltwater resources, there are 2,747 acres of freshwater surface and miles of rivers and streams offering recreational potential.

The region's facilities for water-based recreation activities appear sufficient to meet the North Shore's present demands. But by 1985 the North Shore will need additional natural ice skating areas and boating facilities for projected unmet demands of 21,466 people and 9,366 people, respectively.

At present, the many fine municipal and commercial beach facilities along New Jersey's famed Atlantic coastline appear adequate to accommodate the present and future swimming demands of the North Shore Region. However, further analysis of the swimming supply in terms of distribution and the types of opportunities provided reveals regionwide needs for freshwater beaches and swimming pools. The North Shore's abundant coastal facilities are located too distant from the region's interior communities to meet the close-to-home swimming demands generated by residents. In addition, the coastal based facilities cannot satisfy the swimming demand for freshwater and pool opportunities. Because the user fees charged at commercial beaches and pools often act as barriers to general public use, particularly to large families, the public sector should develop the majority of the required facilities.

It is evident that the North Shore's present and projected natural ice skating deficits and its future boating facility needs are results of lack of access rather than lack of water resources. Adequate access in the form of legal and physical access to the region's thousands of acres of bays, the publicly owned lakes, ponds and reservoirs water surface of 1,529 acres, the 1,217 acres of privately owned freshwater surface, and the proposed state reservoirs totaling 860 acres will alleviate the North Shore's facility needs for these activities.

Rampant pollution has already closed swimming beaches lining the bay shore area of the Raritan-Sandy Hook Bay and threatens to close some of the region's other fine beaches. A direct result of the pollution problem has been the reduction in harvestable shellfish. State action encouraging and coordinating local abatement programs is necessary to restore and realize the area's potential for water-oriented recreation. The proximity of the North Shore to the densely populated northeastern section of the State adds greatly to the importance of protecting the region's valuable water resources.

SOUTHWEST REGION

The Southwest Region's water resources include 3,527 acres of lakes, ponds and reservoirs and the Delaware River and its numerous tributaries. Unfortunately, recreational use of the Delaware River, which borders the region to the west and is within easy access of the majority of the Southwest's residents, has been inhibited by water pollution. Water quality is also a problem of the Delaware's tributaries as they flow through the densely populated strip lining the Delaware River in this region.

At present, the Southwest has a deficit of boating facilities; the 1970 unmet demand amounts to 2,686 people. Facilities for the three other water-based activities, swimming, fishing and natural ice skating, are sufficient to handle the region's present and 1985 demands. By the turn of the century, the Southwest will need additional swimming facilities to accommodate 25,526 people and boating facilities to satisfy a projected unmet demand of 20,286 people.

Analysis of the region's existing swimming supply indicates, however, that a substantial portion of the swimming facilities provided by the municipal level, the Southwest's primary contributor of swimming opportunities, occurs in the region's non-urban communities. Therefore, additional swimming facilities should be developed in the region's urban centers to service these areas. Such facilities should consist primarily of swimming pools since natural opportunities are limited.

Evidently the lack of physical and legal access to the region's water resources is the major cause of the Southwest's present and future boating facility deficits. The lakes, ponds and reservoirs inventory reported 1,232 acres of public recreation water surface while the various jurisdictions providing recreation facilities reported a total boating supply amounting to less than 5% of the inventory acreage indicating a general lack of physical access. In terms of legal access, only 353 acres of the private sector's 2,295 acres of water surface are open for public recreation. Recreational use of another 858 acres is restricted solely to private use.

Upgrading of the region's substandard water resources and providing adequate legal and physical access to these resources will alleviate most of the region's need for water facilities. In the case of swimming, future facilities, whether in the form of pools or beaches, will have to be developed near and within the region's urbanized areas.

Belleplain State Forest

SOUTH SHORE REGION

The South Shore's coastal resources consisting of over 70 miles of Atlantic Ocean shoreline and thousands of acres of bays has long attracted tourists seeking water-based recreation opportunities. In addition to its saltwater resources, the South Shore has over 3,294 acres of lakes, ponds and reservoirs and many miles of clean, unpolluted rivers and streams.

Although the millions of visitors attracted annually to the South Shore generate tremendous demands for water-based recreation, the region's existing facilities, with exception of boating facilities, appear adequate to accommodate present and future demands. The region's present unmet boating demand of 6,003 people is projected to soar to 63,878 people by the year 2000 without the provision of additional facilities.

Since the South Shore fronts on the vast Atlantic Ocean and has thousands of acres of bays, plus lakes, ponds and reservoirs within its boundaries, it is obvious that it does not lack the resources to satisfy boating demands. Rather the problem lies in gaining access to these resources. Alleviation of the South Shore's shortage of boating facilities requires public and private development of boat launching ramps and marinas.

Like the other shore region's swimming facilities, the South Shore's supply is saltwater based and is concentrated, therefore, along the coastal zone. Although not obvious, a need exists within the region for swimming pools and freshwater beaches to provide alternatives to ocean and bay bathing. This need is most pronounced in the region's urban centers and interior communities.

DELAWARE BAY REGION

This region, receiving its name from the Delaware Bay which it borders, is fortunate in terms of potential recreational water resources. In addition to New Jersey's portion of the Delaware Bay — over 225,000 acres — the region has over 3,336 acres of publicly and privately owned freshwater surface.

Rural in character and, at present, relatively inaccessible to the large urban areas, the Delaware Bay has low home and away demands for recreation opportunities. Consequently, the region's existing facilities for the four water-based activities of swimming, boating, fishing and natural ice skating appear adequate to accommodate the present and 1985 demands. By the turn of the century, however, additional boating facilities will be needed to accommodate 2,500 people.

As a recreation resource the Delaware Bay is underutilized. At present, access to this vast recreation resource is limited by the lack of developed facilities, e.g., swimming beaches, boat launching ramps, etc. Primary responsibility for developing these facilities rests with the State since it already owns extensive bay frontage.

Although the Delaware Bay is primarily rural in nature, there are pockets of urban development. For residents of these urban communities, the region's coastal facilities, especially those for swimming, are too distant to meet all their needs. To accommodate the demand for swimming opportunities close to home, local levels of government should develop new swimming beaches and pools.

SURFACE WATER QUALITY IMPROVEMENT

During the past decade the State of New Jersey has taken positive steps toward checking water pollution and improving the quality of its salt and freshwater resources: water quality standards that are in conformance with federal guidelines have been adopted; the surface waters of the State have been classified according to their best uses and the appropriate water quality criteria have been applied; an active enforcement program has been undertaken; and funds from state and federal sources have been made available for the construction of water pollution abatement facilities by local units of government.

New Jersey, like the other industrial states of the nation, faces a massive task which will take time and large expenditures of public and private funds. Under the present classification systems, the water quality of the vast majority of the State's surface water resources will be maintained or upgraded so as to permit contact recreational use, e.g., swimming and water skiing. Only sections of the tidal zones of several rivers will be restricted to secondary contact uses, e.g., fishing and boating by water quality.

UTILIZATION OF POLLUTED WATERS IN URBANIZED AREAS

Many large urban areas in New Jersey have the greatest demand for water-based activities; yet these areas have the fewest natural resources because many rivers and streams in urban areas suffer from critical water pollution. Plans for pollution abatement will alleviate much of this problem, although these plans may require an extended period of time for implementation. One possible solution to this problem may be the idea of filtering a section of a polluted urban river for swimming. This approach could be used in the urbanized areas of New Jersey as it has been accomplished in Paris where sections of the Seine River have been enclosed, filtered and used for swimming.

Certain beach and water areas along polluted rivers and bays could be enclosed by concrete structures. The polluted water would be filtered, purified and then fed into such enclosures. Properly designed, these enclosures would provide a sense of swimming in a large natural area rather than in an enclosed artificial pool. The other side of the enclosure could be used for docking boats, and the top for walkways and sunbathing areas.

Enclosed swimming areas using filtered water are entirely feasible from a construction and perhaps even an economic point of view. This technique is certainly no substitute for the cleaning of marginal waters, but it might very will be used as a temporory measure until adequate treatment of the entire river or stream is achieved.

RESERVOIRS

Throughout the plan reference has been made to the opening of public and private water storage reservoirs to swimming, boating, fishing, ice skating, and other water-based activities. This concept, however, has created much controversy.

Those in favor of recreational use of reservoirs state these points: (a) the opening of reservoirs for recreational opportunities will make it possible for a large number of people to enjoy outdoor facilities, (b) pollution problems in many existing raw water sources are greater than would be created by swimmers and attendant crowds, (c) facilities now available for water treatment can maintain a safe supply of water in spite of the introduction of some pollution, and (d) the physical contact and associated waste disposal of large groupings of people would not present any greater health problem than other uses of lands adjacent to reservoirs.

The opponents of using water supply reservoirs for recreation contend that: (a) swimmers and other sportsmen are representative of the minority of water users and of those who pay for the reservoir, (b) poor quality water sources have been used in the past only through necessity, (c) stored water used for recreation will require filtration and, therefore, it is unfair that all taxpayers must bear this burden of cost to accommodate the recreational desires of a few, and (d) water treatment

is not *foolproof* in preventing the transmission of water-borne diseases.

For the most part, the question of using water supply reservoirs for recreational purposes is viewed largely as an economic matter. Techniques are well developed for treatment of water to reduce its bacteriological hazard essentially to zero. Engineering techniques are also available for removing dissolved materials from waters. Thus, to use water supply reservoirs for recreation, a municipality or water company would have to treat the supply to a greater degree and at a greater cost than would be the case if they were not open to recreational use.

It is encouraging to note that the City of Newark recently completed a study of the recreational potential of its Pequannock Watershed which includes six reservoirs totaling 1,942 water surface acres. If the recommendations of the study are adopted and implemented, opportunities for swimming, sailing and canoeing, fishing and ice skating along with other activities will be provided.

Facilities

ROLES AND RESPONSIBILITES IN THE DEVELOPMENT OF RECREATION FACILITIES

In order to assign jurisdictional responsibilities for the development of recreation facilities to meet future needs, each recreation activity must be analyzed in relation to traditional roles associated with providing these opportunities and the new roles which are likely to evolve. Because of innovations in certain activities and increased urbanization forecasted for 1985 and 2000, the concept of traditional roles will most probably change. Already innovations in our traditional modes of outdoor recreation, such as low cost devices to make artificial snow and equipment such as pop-up tents and luxury trailers, have altered former views concerning recreation responsibilities.

New highways and increased mobility, i.e., high speed mass transit that will bring rural parks within almost instant reach of urban dwellers, may also require a re-examination of traditional responsibilities.

Urbanization in New Jersey is perhaps the major force motivating changes in traditional roles and responsibilities. New Jersey, already the most densely populated state in the nation, is gaining over 300 people every day and is developing between 5,000 and 10,000 acres of former agricultural land yearly. Outgrowths of this rapid urbanization, such as rising land costs and escalating taxes, are among the factors influencing these traditional role changes by reducing the private sector's ability to fulfill former responsibilities. Responding to the crucial need to retain green oases for outdoor recreation and provide additional facilities to meet expanding recreational needs, the various levels of government are enlarging their traditional roles to assume greater responsibilities.

FEDERAL

Traditionally, the Federal Government's role in New Jersey has been focused on the preservation and conservation of historic sites and natural areas of national significance. However, in recent years, the federal role in outdoor recreation has been greatly enlarged in scope as evidenced by several factors. First, the Federal Government has initiated matching federal grants to assist state and local recreation planning and development. Second, it has sold or leased on a long term basis 375 acres of federal surplus property for park or recreation purposes at discount prices to the state, county and municipal units of government, and under the new Legacy of Parks Program, which empowers the General Services Administration to dispose of surplus property at 100% discount for park and recreation uses, the Federal Government has transferred 772 acres to state and local agencies. Third, it has planned development of the Delaware Water Gap National Recreation Area in northwestern New Jersey. Most significantly, the Federal Government will establish the Gateway National Recreation

Area in the center of the northern New Jersey-New York urban complex, indicating that it will assume a greater responsibility for providing recreation opportunities in or close to urban areas.

The Surplus Property Program offers an excellent opportunity for federal, state and local cooperation in providing recreation facilities for the benefit of the public. According to a recent inventory, federal agencies own nearly 125,000 acres of land in New Jersey. Slightly over 45,000 acres are dedicated to recreation open space or related functions, leaving nearly 80,000 acres dedicated to other uses. Federal military agencies own the majority of this acreage in the form of expansive installations with Fort Dix, occupying 31,992 acres in Burlington County, being the largest. Ranging in size from the large military reservations to the less than one acre lots used for Post Offices, many of the federal properties in New Jersey offer excellent recreation development potential when declared surplus, particularly in or close to urban areas where many are located.

STATE

The State's traditional role has centered on providing facilities for activities which are extensive in nature. The State has enlarged upon this traditional recreational responsibility in response to problems created by urbanization and its roles as dispenser and coordinator of federal and state funds for local recreation programs. Examples of the State's expanded role in outdoor recreation are apparent: the initiation of the Green Acres Program to acquire open space recreation land now to serve future needs; the undertaking in cooperation with local governmental units of projects serving primarily urban residents, e.g., Liberty State Park; the integration of recreation as a significant part of interstate planning; the provision of public facilities of broad, popular appeal, e.g., Sandy Hook and Island Beach State Parks; the multiple use development of Spruce Run and Round Valley Reservoirs to serve recreation needs and water supply; and the development of facilities not previously provided at state recreation sites, e.g., a golf course at Allaire State Park.

LOCAL

At the local level, the rapid expansion and development of recently established county park systems in Cape May, Mercer, Monmouth, Morris and Somerset counties, the response to the Green Acres land acquisition programs, and the numerous applications submitted for federal matching fund assistance for facility development are indications that New Jersey's counties and municipalities are responding to the public's increasing need for outdoor recreation opportunities close to home.

PRIVATE

The private sector, composed of commercial enterprises, private or restricted membership clubs and quasi-public organizations, is the major contributor of facilities for many recreation activities. The future role of the private sector in the provision of outdoor recreation facilities will largely be determined by economics since the commercial concerns, the largest segment of the private sector, will only supply facilities which prove profitable (e.g., boat marinas and campgrounds).

ACTIVITY ANALYSIS

In the following paragraphs, a breakdown of jurisdictional responsibilities for the provision of opportunities for each of the twelve activities analyzed is presented. These responsibilities are outlined in general terms since in each study region the relative resources and capabilities of the various jurisdictions differ.

Swimming—Of all outdoor recreation activities, the highest demand now and in the future is for swimming and related water-oriented activities such as fishing and boating. New Jersey, bordered on three sides by water and possessing numerous inland waterways and over 50,000 acres of lakes and ponds, offers an apparent abundance of natural opportunities for water-oriented and related activities. However, man-made barriers have seriously inhibited the full use of our waters for recreation by the general public.

At present, 97% of the existing swimming facilities are provided by the private sector and municipal level. In many cases, high user fees or restrictions limiting use to residents of a community or members of a club act as barriers to general public use of these resources. The State is responsible for providing facilities with broad, popular appeal and reasonable user fees. Consequently, the State should continue to acquire and develop new areas similar to Island Beach, Sandy Hook and Hopatcong State Parks and multi-use Spruce Run and Round Valley Reservoirs to accommodate the general public's need for adequate swimming facilities. Such state action would serve to protect the vulnerable coastal beaches from the deleterious effects of beach erosion and poorly planned development.

The need for swimming facilities is greatest in urban areas where, in many instances, man-made barriers in the form of air and water pollution prevent the full use of natural water resources. It appears that present and future deficiencies in the supply of swimming facilities in these areas will, of necessity, be met largely by construction of swimming pools. At present, the private sector is the primary supplier of swimming pools (82% of the State's pools), but in the future the county and municipal levels will have to provide a larger proportion of swimming pools within easy access of the population.

Boating — Accessibility in the form of additional launching, mooring, and boat rental facilities is needed to unlock the obvious potential of New Jersey's water resources for boating opportunities. The State should play the pivotal role in the procurement of rights-of-way and stream rambles in order to provide boaters legal access to water bodies. Municipalities, counties and the State should coordinate actions to develop these resources to their fullest by providing canoe and boat rentals, launch facilities and marinas. The State should continue developing reservoirs for multiple use like Spruce Run and Round Valley.

Recreational waterways should be established by the State with adequate access and supporting facilities. The State of New Jersey is in the process of establishing a number of access points along the Delaware in order to take full advantage of the river's recreational potential. Access points, with suitable accompanying facilities for overnight camping, will be spaced at intervals equal to the average daily travel distance of a canoer. Similarly, the State is planning to develop the Delaware and Raritan Canal as a recreational waterway with such water-related facilities as picnic tables and campsites provided along the canal's course. Opportunities for providing water skiing, sail boating and ice boating should be explored by the various levels of government.

At present, the private sector provides 86% of all boating berths in New Jersey. Encouragement and assistance should be given to the private sector to continue its role as New Jersey's major supplier of boating accommodations and boat service facilities.

Fishing — Water pollution seriously affects participation in fishing. Unchecked pollution has disrupted the balance of nature and greatly diminished natural reproduction of fish in many of New Jersey's water bodies. Inedible, low grade species able to tolerate polluted waters have replaced the more desirable fish, thus forcing many sport fishermen to travel further for good fishing opportunities. The State should provide the incentive and administrative framework for water quality management programs in coordination with the enforcement of anti-pollution ordinances at the local level. The state and federal levels should continue to make funds available to local governments for the construction of new sewerage facilities and the upgrading of existing facilities.

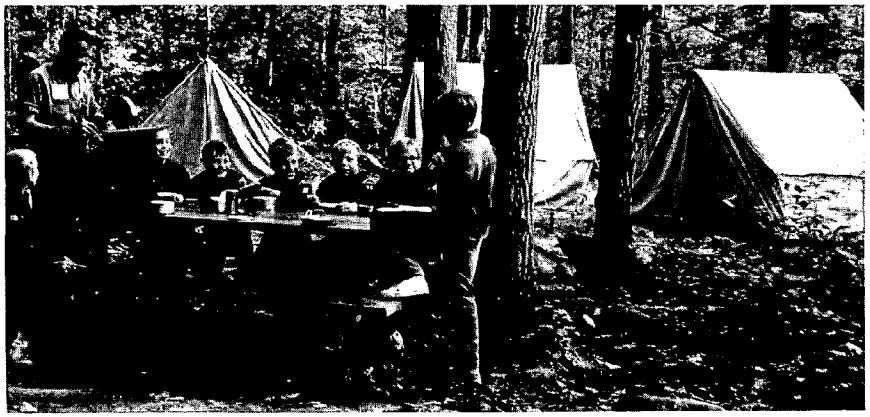
The fact that many of the State's waters are capable of providing quality fishing for large numbers of anglers is attributed to the fish rearing and stocking program of the Division of Fish, Game and Shellfisheries. This is particularly true in the heavily fished waters of the densely populated urban areas, and in those waters which, because of pollution that is manifest by high natural temperatures, are capable of supporting quality fish only during the spring or fall seasons when temperatures are acceptable. In many areas this has been the only way that a pleasurable recreational fishing experience has been made available to the public. In view of the further urban sprawl and disproportionately heavy fishing effort on small waters in urban

areas and the increasing limitations on the fish producing capabilities of such waters as the result of pollution characteristic of such situations, the State should expand the sport fish rearing capabilities of the Division of Fish, Game and Shellfisheries.

As with boating, access is the major factor in opening fishing areas for the public. The procurement of rights-of-way, stream rambles and the construction and repair of fishing piers and jetties are all needed to alleviate the pressure created by the lack of access. The major responsibility for access development falls under the State's jurisdiction since it is closely allied to the State's other responsibilities in navigation, water and fish resource management. In areas conducive to overnight fishing trips, the State should develop auxiliary facilities including camping and boat launches similar to those being developed along the Delaware River. The counties and municipalities should consider acquiring access rights to water and stream rambles to provide local opportunity for day use fishing.

Saltwater fishing, either from the shore or on a boat, faces a possible threat of water pollution from unrestricted sewage and waste disposal that could adversely affect fish reproduction. The State has a prime responsibility to protect the ecological balance along its shores. In international waters beyond the three mile limit, the Federal Government should guard against destructive practices such as the dumping of oil and poor harvesting methods.

Campgaw Mountain



Surf fishing is a popular sport in New Jersey. Though it can be enjoyed all year round, peak participation occurs in the spring and fall. Since participation in surf fishing does not conflict with swimming in these seasons, the public and private sectors should be encouraged to promote use of their shoreline resources for this activity. In addition, the private sector should be encouraged to develop fishing facilities open for public use at reasonable fees.

Hunting—The State provides 80% of the land for hunting in New Jersey. The State should continue to acquire land for hunting in regions where it is still available in order to accommodate the unmet hunting demands of many regions where it is impossible to set aside hunting areas because of intense residential and industrial development pressures. As hunting requires extensive undeveloped land tracts, the State must act now while such tracts still exist. Continued state action in coordination with local governments is needed to preserve and protect existing public and private hunting grounds from despoliation resulting from incompatible development. The State should also seek to increase the supply of wildlife through habitat improvement programs, expanded stocking programs and research to produce higher per acre yields.

The remaining supply of hunting facilities is owned by the private and quasi-public hunting clubs and groups, generally on land owned outright or leased from farmers and other large tract landowners. Large tract landowners should be encouraged to open their lands to public hunting because of the recently enacted legislation limiting their liability for accidents occurring on their property. However, the private function will probably diminish in the future as more recreation lands are acquired by the public sector.

Camping—The fastest growing demand for any activity is for camping. In assessing the public and private role in camping facility development, consideration should be given to the varieties of camping experiences possible, such as wilderness, group, day, and tent and trailer camping.

State camping facilities are primarily family campsites accommodating tents and/or trailers. Recently, the State

completed development of over 100 wilderness campsites at Round Valley Reservoir. The State should continue the development of wilderness, tent and trailer and group camping facilities, especially as a supporting facility to hunting, hiking, boating and fishing.

At the local level, the development of day camps will provide children living in urban areas with the opportunity to enjoy at least a small measure of the camping experience in a natural setting. Most county park systems in New Jersey own land appropriate for day camps; municipal participation, however, generally requires the cooperation and use of nearby county or state lands.

At present, the commercial enterprise segment of the private sector supplies 80% of New Jersey's family campsites. However, continued suburbanization and increasing land prices threaten to diminish both existing and potential private camping areas. Methods should be devised by all levels of government to protect the role of private camping in New Jersey. The use of private lands and capital should be promoted to develop additional overnight facilities near resort areas and hunting and fishing grounds. A growing number of people attracted by the high degree of mobility, comfort and inexpensive accommodations offered by vacation trailers will necessitate more development by either the State or private enterprise to accommodate this increasingly popular mode of camping.

Nature Interpretation — Nature interpretative facilities in the form of nature centers, trailside displays, guided and self-guided trails are usually developed in conjunction with undisturbed areas that may serve as "outdoor classrooms." Often such natural areas contain rare specimens of plants and represent unusual or uncommon biotic communities.

Although the state and federal levels and the private sector have preserved many of the finer botanical areas in New Jersey, programs must be stepped up to acquire the remaining rapidly disappearing botanical areas of interest. The State should assume the burden of this responsibility because of its greater flexibility to implement programs and its financial resources.

The three jurisdictions owning areas of natural significance — the state and federal levels and the private sector — provide interpretative facilities and programs at many sites. But there is still a need to expand these programs particularly at the state level to handle more people at more sites and to increase staffing to adequately supervise these expanded programs.

The need for nature interpretation is most acute in the urban centers of the State where industrial and residential development has consumed much of the open space and there is little opportunity for the urbanite to come in contact with nature. Nature appreciation programs should be initiated at the local levels of government to utilize the resources at hand including municipal and county parks and woodlots adjoining schools. State facilities and programs could be used to supplement local efforts.

Hiking and Horseback Riding — Traditionally, all levels of government and the private sector have provided developed trails for hiking and horseback riding. The state level and private sector, the two primary contributors of trail mileage, combined provide 75% of the State's 3,134 miles of hiking trails and 90% of the 918 miles of bridle trails. The vast majority of this trail mileage is provided in the rural sections of the State.

The Federal Government can be expected in the future to assume a greater role in providing trails in New Jersey. Construction of trails planned at the Delaware Water Gap National Recreation Area and other federal recreation areas in the State will dramatically increase total trail mileage provided by the federal level.

Passage of the National Trails System Act of 1968 demonstrated the growing concern of the Federal Government for the provision of trails. The Act designated the Appalachian Trail, of which approximately 60 miles passes through New Jersey, as one of the initial components of the national trail system and provided for the inclusion of other trails upon application. To date, two other trails in New Jersey have been added to the system.

The private sector not only provides substantial trail mileage in New Jersey, it also provides the most significant trail system in the State. The 60 mile segment of the Appalachian Trail passing through the northwest section of New Jersey is maintained by the Appalachian Trail Conference, a private organization, and much of the trail's length is located on private lands.

Although hiking and horseback riding are classified as backwoods activities, facilities for these activities may be found within or in close proximity to every urban center in New Jersey. Frequently, counties develop trail systems in their large urban parks and reservations and, in many cases, municipalities provide trails primarily for hiking purposes. In fact, hiking clubs often include on their tours points of historic interest in urban areas.

To meet the urgent need for trails, the State should play the pivotal role since its jurisdictional ability allows it to provide a framework for coordinating local and private interests. The excellent opportunities for trail development presented by canal towpaths, stream valleys, utility rights-of-way, and areas along the ocean front and around large reservoirs and lakes should be explored by all levels of government and private interests. Trail development should be planned and coordinated so as to produce a statewide network of trails offering accessibility to areas of scenic, natural, scientific and historic value throughout the State.

Picnicking — Picnicking is essentially a group or family oriented activity. It can be sought as an activity in itself or as an accompaniment to other activities: sightseeing, swimming, hiking, fishing, boating, and recreation travel. Because of its varied nature, picnicking facilities are needed at sites close to home, in resort areas and recreation sites attractive to families and groups, and along the State's highways.

Major responsibility for the provision of picnicking facilities designed for families and groups at sites close to home should be assumed by municipal and county governments.

The picnic areas required at sites with high tourist appeal should be developed by all levels of government and the private sector. Local governments, especially in the shore regions, should investigate the feasibility of providing picnicking facilities to serve day use visitors and summer residents at a nominal fee to offset maintenance costs. An alternative method would be to provide special incentives that would make picnic development profitable enough to attract private enterprise. At state recreation areas, the State should develop adequate picnicking facilities to supplement other activities. The State is also responsible for providing picnic sites along major highways and scenic routes to expand the statewide wayside rest system.

Bicycle Trails — The recent upsurge of interest in bicycling for pleasure as well as for transportation has created a tremendous need for bicycle facilities. At present, nearly all bicycling takes place on residential streets without segregated traffic lanes, since designated bicycling facilities are virtually nonexistent. Because this present situation exposes the bicyclists, many of whom are youngsters, to constant danger, a concerted effort by all levels of government should be made to provide safe bicycle paths along transportation routes and in open space recreation areas. Since the vast majority of the bicycling demand is generated within close proximity of a person's residence, the primary responsibility for bicycle facility provisions rests with the local levels of government. Municipalities should endeavor to establish community wide bicycle path systems, possibly using street systems and segregating bicycle traffic from automobile traffic by any one of a number of methods now in use throughout the country. In municipal, county and state recreation areas, bicycle trails should be constructed where feasible from a physiographic viewpoint. Existing and future highway rights-of-way should be studied by the county and state levels of government for potential bicycle trail development.

Snow Skiing — Facilities for snow skiing can only be developed where suitable terrain and climatic conditions exist; therefore, the skiing needs of regions unsuitable for such development will have to be accommodated in the few regions possessing the necessary conditions.

The private sector operates the majority of New Jersey's existing ski facilities and should continue as the primary supplier of skiing opportunities in the future. Since sites suitable for ski facility development are limited, the State should consider allowing private enterprise to develop facilities at suitable state owned sites, or develop the facilities itself using state funds. At the local level, resources such as the slopes of public golf courses should be developed for the novice skier and those who desire practice areas close to home.

Ice Skating — Climatic conditions determine the availability of ice skating on natural areas such as lakes, ponds, and artificial impoundments that require low air temperatures to freeze the water. In the northern regions of the State, climatic conditions permit greater use of natural ice areas than in the southern regions. But since natural ice areas are not continuously available for use throughout the winter season, artificial ice skating facilities, which increase the number of days of use by utilizing refrigeration techniques to produce ice, are needed to satisfy part of the ice skating demand in all regions.

Opportunities for ice skating are most frequently sought close to home; therefore, the responsibility for providing ice skating facilities rests primarily with local levels of government.

The municipal level should procure legal access to water bodies offering ice skating conditions, develop multi-use court game surfaces that would permit ice skating use, and construct artificial ice areas that would provide opportunities independent of weather conditions. The county level could supplement municipal facilities by developing additional artificial ice skating rinks.

At present, the private sector supplies the majority of New Jersey's ice skating facilities. Through encouragement and assistance by all levels of government, private investment should be stimulated to continue development of facilities for ice skating.

Outdoor Games and Sports — Opportunities to participate in games and sports activities such as baseball, basketball, football and tennis are usually sought in day use areas near to one's place of residence. Traditionally, the local levels of government have developed the majority of the games and sports facilities. Municipalities have the primary responsibility for providing facilities within walking distance of residents, while counties should supplement municipal areas.

The provision of public golf facilities should be the responsibility of the county. Golf courses require extensive development of at least 130 acres, and the acquisition of such a large amount of land strictly for the use of one activity is usually beyond municipal financial capabilities. In order to maintain the present supply of golf facilities, methods such as preferential tax rates should be adopted to protect existing private golf courses.

FACILITY STANDARDS

A standard is defined as a principle or a measure established by authority for comparison and judgement. Relative to outdoor recreation, it is a recognized reference point for use as a guideline or a suggested goal to aim for when developing recreation facilities or for determining the capacity of a given facility. It should also provide for safety, comfort and enjoyment of a given recreation activity.

A disadvantage of many standards is that they apply only to the specific development of recreation facilities for accommodating demand; they do not elaborate on how much total land area is needed to support and create the overall "mood" for a developed recreation facility. For example, a camping area could be properly designed according to accommodation standards, but fail to have recreation appeal if it is set within sight of a busy highway or clustered too near to many other recreation facilities. The feeling of being in the midst of the outdoors, isolated by privacy and quiet from the man-made world and enveloped by the stirring beauty of a landscape in its natural state is a difficult thing to measure empirically but surely essential to the enjoyment of most outdoor recreation activities.

Realizing the lack of unanimity concerning outdoor recreation standards, a study was made to select standards for New Jersey according to a logical set of criteria which reflected known environmental and ecological relationships to the development of recreation facilities. Consideration was given to New Jersey's unique situation as a compact, highly urbanized state and its present and potential opportunities for providing outdoor recreation. The following criteria were used or influenced the selection of standards deemed appropriate to New Jersey's physical and socio-economic characteristics:

Accessibility
Aesthetics
Climate
Economic Feasibility
Environment
Site Attraction
Social Desirability of the Activity
Soil Structure
Topography

Standards allowing a relatively high degree of use, but not so high as to be generally uncomfortable or to deter the aesthetic appreciation were used. It should be noted, however, that these standards are for statewide application and may not represent the optimum conditions at a given site because of variations from the average of the specific physical and socio-economic characteristic factors. Several standards must be used to estimate the capacity for a given activity where the various inventories did not consistently express the number of facilities in the same terms. For example, swimming facilities were expressed in terms of feet of shoreline, acres of beach, or the number of swimming pools, depending upon which supply inventory was consulted.

The suggested activity standards for New Jersey are shown in Table 5.

TABLE 5: SUGGESTED ACTIVITY STANDARDS FOR NEW JERSEY

Activity	Recreation Standards	Source
Swimming	• 1 person per 100 square feet of beach (435 people per acre) • 2 persons per foot of shoreline • Capacity of average pool facility is 555 (5,000 square feet average pool, divided by 27 (1 swimmer per 27 sq. ft.) times 3, since 1/3 of the people at pool are in the water on an average so 3 times pool capacity equals facility capacity).	California Public Outdoor Recreation Plan Committee Architectural Standards *Ramsay and Steeper
Boating	• 1 boat per number of boating berths and liveries (3 people per boat) • 1 boat per 3 acres of water area (3 people per boat); power and sail boats • 1 canoe per 1 mile of stream • 1 boat for water skiing per 5 acres of water • 40 boats per access unit (3 people per boat)	California Public Outdoor Recreation Plan Committee New Jersey Department of Environmental Protection
Fishing	• 15 persons per acre of lake • 1 person per 20 feet of shoreline • 50 people per facility	New Jersey Department of Environmental Protection
Camping	• 4 persons per campsite • 4 campsites per acre • 16 people per acre • 1 campsite per acre of total area including open space (Developed Area)	Bureau of Outdoor Recreation
Hiking	• 16 persons per mile of trail • Wilderness hiking — 4 persons per mile of trail	New Jersey Department of Environmental Protection
Bicycling	• 18 persons per mile of trail	New Jersey Department of Environmental Protection
Horseback Riding	• 12 persons per mile of trail	New Jersey Department of Environmental Protection
Hunting	• 1 person per 5 acres	New Jersey Department of Environmental Protection
Picnicking	• 5 people per table • 8 tables per acre • 40 people per acre • 2 or 3 tables per acre of total area	Soil Conservation Service
Ice Skating	• 1 person per 30 sq. ft. of artificial ice (1452 people per acre) • 726 people per acre of natural ice	New Jersey Department of Environmental Protection
Snow Skiing	• 30 skiers per acre of slope	Bureau of Outdoor Recreation
Outdoor Games & Sports		
Playgrounds	• 1 person per 150 square feet • 50 persons per average playground (7500 square feet*)	Meyer & Brightbill *New Jersey Department of Environmental Protection
Playfields	• 20 persons per acre of field	New Jersey Department of Environmental Protection
Game Courts	• 10 persons per court	New Jersey Department of Environmental Protection
Golf Facilities	• 300 persons per 18-hole course • 150 persons per 9-hole course • 200 persons per Par 3 course	New Jersey Department of Environmental Protection

REGIONAL ANALYSIS

In analyzing New Jersey's present and future needs for more developed facilities in the twelve selected activities a regional approach was undertaken. Considering the diversity of natural resources for recreational use throughout the State and the variation in regional population densities, an analysis on a statewide basis would be inadequate to guide recreation planning efforts. Because of the home oriented nature of certain activities and the lack of mobility of segments of the population, surpluses of facilities in one region do not necessarily offset deficits occurring in other regions. A region-by-region approach also permits a comparison of the different levels of regional need for specific facilities to assist in establishing a development program to meet the more severe needs first.

The recreational needs of each study region were analyzed in relation to each region's natural resource limitations, the character of urban development, and the effects of anticipated development such as future highway construction and residential growth.

Recreational needs for the years 1970 and 1985 were determined by comparing the derived demands for these benchmark years to the 1970 facility capacities. In determining the year 2000 facility needs, the assumption was made that sufficient facilities will have been developed to meet the 1985 requirements. Therefore, for each activity the 2000 facility need was derived by comparing the 2000 activity demand to the 1985 demand, assumed satisfied, or to the 1985 facility surplus.

Jurisdictional responsibilities for the provision of additional facilities in terms of capacities were assigned based upon traditional roles and responsibilities, present trends and plans, and financial and administrative capabilities. Since the private sector's user fees and membership requirements often act as barriers to the general public, particular attention was paid to this sector's role and future responsibilities.

Facility surpluses and deficits noted at the regional level do not necessarily reflect conditions at the subregional or local levels. The availability of abundant coastal beaches within the region does not obviate the need for local opportunities within walking distance of the people to be served. On the other hand,

one community may have an adequate facility supply of artificial ice skating, for example, while the region shows an overall deficit. Thus, the specific needs of a community within a region cannot be derived directly from aggregated regional totals. These summaries provide a general guide to regional conditions and permit the establishment of activity priorities within a region and between regions.

The discussions presented in this section concerning facility deficits for the four water-based activities—swimming, boating, fishing and ice skating on natural water bodies—identify the regional needs and the responsibilities of the various jurisdictions to provide the required facilities. A more detailed analysis of the unmet water-based recreation demand, the potential of each region's water resources to satisfy specific needs, and the apparent reasons for facility deficits is presented in the section entitled "Water Resources: Needs, Problems and Potential."

OUT REGION DEMAND

In several regions a lack of natural resources, due either to physical characteristics, location or climate of the area or the extent of urbanization and development, makes it unreasonable to expect these regions to provide facilities to meet resident demand for certain activities. These activities—hunting, fishing, swimming and skiing, for example—require the presence of natural land and/or water resources or certain climatic conditions, and are not necessarily provided close to home. Since people are willing to travel moderate distances to find these opportunities, the responsibility for providing the facilities must be absorbed by neighboring regions or regions with the natural resource potential to meet the "out region" demand.

For planning purposes it has been assumed that the State of New Jersey has the resources to provide these facilities even though these resources are not located where the demand originates. Thus, attempts should be made to satisfy this demand within the State and not force residents to travel to other states to find desired recreational opportunities.

The responsibility for providing the facilities to meet this demand should not be placed on local levels of government which are concerned with resident population needs. The out region demand has been assigned to those jurisdictions or groups which are concerned with all the State's citizens wherever they reside—the Federal Government, the State Government and the private sector.

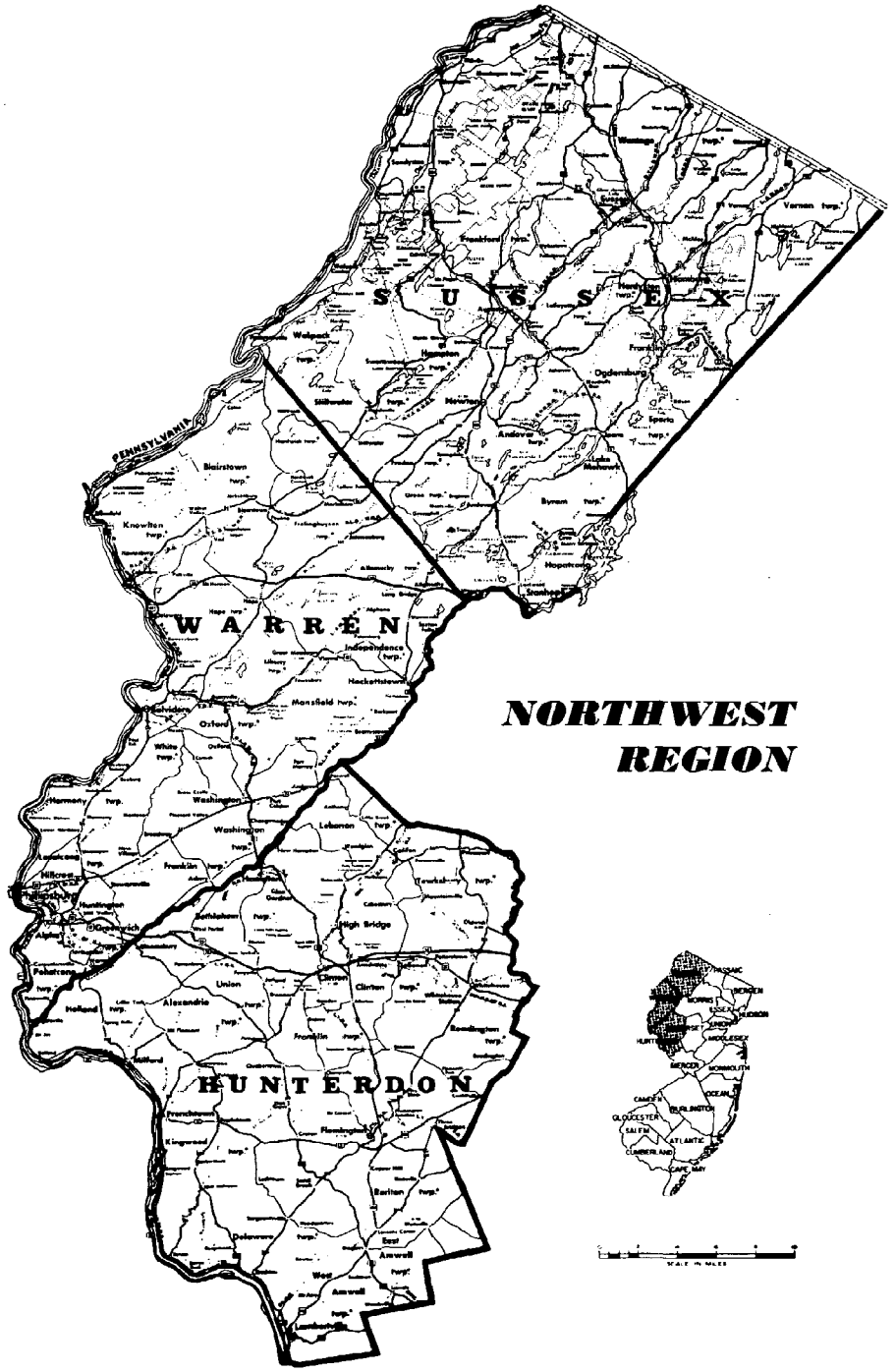
The assignment of this demand to other regions was determined by climatic conditions and by the presence or absence of land and water resources which, although these resources may not yet be developed for recreational use, have the potential for fulfilling both resident and out region demand. The distribution was also based on information gathered in the Recreation Travel Study indicating where people are likely to travel in New Jersey to find areas of recreation.

For 1985 and 2000 an unmet demand of 219,067 people was apportioned as out region demand in eight activities. For 1985 the largest apportioned needs are in swimming (60,712 people), boating (51,916 people) and snow skiing (40,700 people). Five regions are the source or origin of this demand and the urbanized Northeast is the largest with 51,252 or 78% of the total for the eight activities. The Central Corridor represents 3% of the demand in fishing and hunting and the North Shore, South Shore and Delaware Bay regions represent the remaining 19% all in snow skiing. The receiving or destination regions absorbing most of the out region demand are the Northwest and North Central (63%), and North Shore and South Shore (35%). (Refer to Table 6.)

TABLE 6: 1985 OUT REGION DEMAND

Region	Origin	Destination
Northwest	–	41%
North Central	–	22%
Northeast	78%	–
Central Corridor	3%	1%
North Shore	6%	24%
Southwest	–	1%
South Shore	12%	11%
Delaware Bay	1%	–

Tables 7 through 14 summarize the supply, demand and surplus or deficit of facilities for 1970, 1985 and 2000 by region. These tables are based on the regional demand and regional facility supply. The out region demand has been subtracted from the region of origin and added to the region of destination in demand and needs for 1985 and 2000. For example, in the Northeast Region it was determined that the unmet swimming demand should be satisfied partly with swimming pools close to home, but that residents would also want to swim in lakes and ponds and the ocean although the Northeast Region is severely limited or totally lacking in these resources. Therefore, 30% of the region's unmet 1985 swimming demand has been allocated to the Northwest (7,927 people) and North Central (5,284 people) regions and to the North Shore (10,569 people) and South Shore (2,642 people) regions. Since this deficit of 26,422 people is no longer considered the responsibility of the Northeast Region it is subtracted from the 1985 swimming demand of 233,200 producing an adjusted regional demand of 206,778 which the municipal and county governments and the private sector are responsible for meeting. The 26,422 demand has been transferred to the four regions mentioned above, added to the regional demand to produce an adjusted demand total and compared with 1970 regional supply to determine whether a surplus or deficit exists. If there is a surplus, it has been assumed that both regional and out region demand can be satisfied. If there is a deficit, responsibility for providing the needed facilities is assigned to the public and private sectors, and the out region demand, which is part of the total deficit, is shown in brackets next to the jurisdiction responsible for meeting these needs. In the regional discussions which follow, the out region demand is not discussed separately from total regional demand.



NORTHWEST REGION

The Northwest Region's rugged terrain and rural character make the region one of New Jersey's most desirable recreation areas. The region's popularity as a recreation oriented zone is obvious in that the away or tourist demand for developed recreation facilities is twice as high as the region's home demand.

TABLE 7: NORTHWEST REGION — PRESENT AND FUTURE DEVELOPED RECREATIONAL FACILITY NEEDS

	1970					1985				2000			
	Demand people	Supply facilities[1]	Supply people[2]	Surplus or Deficit facilities[3]	Surplus or Deficit people[4]	Demand people[5]	Surplus or Deficit facilities[6]	Surplus or Deficit people[7]	Jurisdictional Responsibility[8]	Demand people	Surplus or Deficit facilities[9]	Surplus or Deficit people[10]	Jurisdictional Responsibility
Swimming	46,800		73,186		(26,386)	65,100		(159)		92,500		37,528	Municipal – 5794
						+7,927				+18,214			County – 966
						73,027				110,714			State – 10,294 (3086)
Permanent Pools		37									68		Federal – 7615 (1029)
Feet of Shoreline		24,368									18,764		Private – 12,859 (6172)
Acres of Beach		9									86		
Boating	9,500		6,941		2,559	13,300		9,181	Municipal – 318	19,400		8,470	Municipal – 305
						+2,822			County – 318	+5,192			County – 305
						16,122			State – 3744 (564)	24,592			State – 2,914 (474)
No. of Areas		11		85			306		Federal – 2613 (706)		282		Federal – 3,033 (593)
Ramps		7		21			77		Private – 2188 (1552)		71		Private – 1,913 (1303)
Berths		1,088		853			4,591				2,823		
Water Acres		2,507		2,559			9,181				8,470		
Fishing	13,400		108,561		(95,161)	16,000		(91,902)		21,000		(82,105)	
						+ 659				+5,456			
						16,659				26,456			
No. of Facilities		91											
Water Acres		5,373											
Miles of Shoreline		88.7											
Camping	4,300		12,316		(8,016)	7,000		(5,316)		11,300		(116)	
Family Sites		3,079											
Hiking	1,800		9,435		(7,635)	2,900		(1,146)		4,400		5,124	State – 1537 (1537)
						+5,389				+10,159			Private – 3587 (3587)
						8,289				14,559			
Miles		589.7									320		
Bicycling	6,600				6,600	8,300		8,300	Municipal – 4980	10,700		2,400	Municipal – 1440
									County – 1660				County – 480
Miles				367			461		State – 1660		133		State – 480
Horseback Riding	1,100		2,477		(1,377)	1,300		(1,177)		1,700		(777)	
Miles		206.4											

[1]Includes Municipal, County, State, Interstate, Federal and Private facilities.
[2]Total estimated capacity of 1970 facility supply.
[3]Indicates total number of facilities necessary to satiate unmet 1970 demand for each type of facility.
[4]Represents deficit or (surplus) of 1970 supply of facilities in terms of capacity to meet 1970 demand.
[5]Represents regional demand and where necessary addition of demand from other regions or subtraction of regional demand distributed to other regions to determine an adjusted regional demand.
[6]Indicates total number of facilities necessary to satiate unmet 1985 adjusted demand for each type of facility.
[7]Represents deficit or (surplus) of 1970 supply of facilities in terms of capacity to meet 1985 adjusted demand.
[8]Apportioned share of the facility capacity deficit which should be accommodated by the various jurisdictions within the region based upon their responsibilites and capabilities. That portion of a jurisdiction's responsibility which, as apportioned from out region demand is shown in brackets. Below the dotted line the demand assigned to other regions is distributed to the receiving regions. (Private sector includes commercial enterprises, quasi-public organizations and private or restricted membership clubs.)
[9]Indicates total number of facilities necessary to satiate unmet demand for each type of facility assuming the 1985 deficit has been met.
[10]Represents deficit or (surplus) of supply of facilities in terms of capacity to meet 2000 adjusted demand assuming the 1985 supply deficit has been met.

TABLE 7: NORTHWEST REGION (continued)

	1970					1985				2000			
	Demand people	Supply facilities[1]	Supply people[2]	Surplus or Deficit facilities[3]	Surplus or Deficit people[4]	Demand people[5]	Surplus or Deficit facilities[6]	Surplus or Deficit people[7]	Jurisdictional Responsibility[8]	Demand people	Surplus or Deficit facilities[9]	Surplus or Deficit people[10]	Jurisdictional Responsibility
Nature Interpretive Facilities (includes trails, displays and centers)	6,700	These facilities should be developed where ecologically significant conditions exist.				8,100				10,500			
Hunting	3,400		14,406		(11,006)	3,400 +10,475 13,875		(531)		4,000 +11,350 15,350		944	State – 802 (744) Private – 142 (131)
Acres		72,028									4,720		
Picnicking	16,100		16,060		40	19,100 +4,600 23,700		7,640	Municipal – 304 County – 760 State – 1372 (460) Federal – 5052 (4140) Private – 152	27,300 +7,516 34,816		11,116	Municipal – 820 County – 2050 State – 2752 (292) Federal – 5084 (2624) Private – 410
Acres		288		1			191				278		
Tables		908		8			1,528				2,223		
Ice Skating – Natural	38,200		93,449		(55,249)	55,600		(37,849)		77,900		(15,549)	
No. of Sites		65											
Acres		69											
Ice Skating – Artificial	700				700	1,000		1,000	Municipal – 200 County – 700 Private – 100	1,400		400	Municipal – 80 County – 280 Private – 40
Acres				5			.7				.3		
Snow Skiing	1,800		9,800		(8,000)	2,700 +19,380 22,080		12,280	State – 3684 (3684) Private – 8596 (8596)	4,400 +32,200 36,600		14,520	County – 300 State – 4266 (3846) Private – 9954 (8974)
Acres		326					409				484		
Outdoor Games & Sports	19,300		8,365		10,935	26,400		15,465	Municipal – 10825 County – 2320 State – 773 Private – 1547	36,900		10,500	Municipal – 7350 County – 1575 State – 525 Private – 1050
Playgrounds		83		219			309				210		
Open Playfields		110		547			773				525		
Game Courts		125		1,094			1,547				1,050		
Golf – 18 holes		7		146			206				140		
Golf – 9 holes		5		273			387				263		
Golf – Par 3		2		547			773				525		

[1]Includes Municipal, County, State, Interstate, Federal and Private facilities.
[2]Total estimated capacity of 1970 facility supply.
[3]Indicates total number of facilities necessary to satiate unmet 1970 demand for each type of facility.
[4]Represents deficit or (surplus) of 1970 supply of facilities in terms of capacity to meet 1970 demand.
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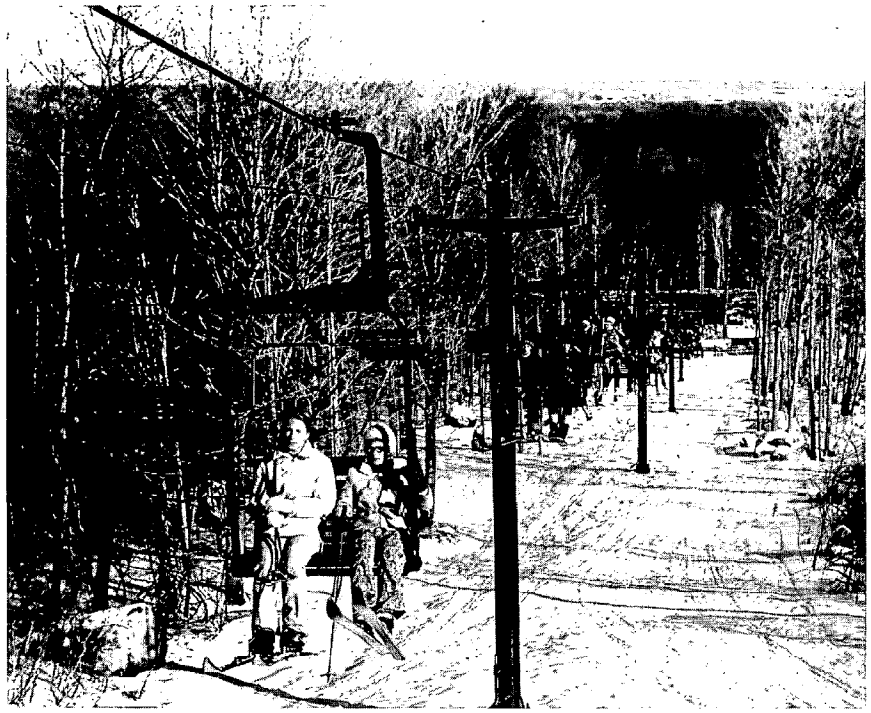


The Northwest Region has tremendous recreation potential due to its outstanding scenic natural features, an abundance of streams and lakes, the best physiographic conditions in New Jersey for winter sports, and healthy ecosystems supporting a wide variety of wildlife.

To date, however, the Northwest's nearly unlimited recreation potential has not been fully realized because of a lack of access to the region. But the development of the Delaware Water Gap National Recreation Area is expected to alter this picture by requiring improvements to existing roads and construction of new highways to accommodate the nearly four million expected visitors to the completed recreation area. Such improvements will reduce the travel time from the densely populated regions in New Jersey to the Northwest and consequently increase use of all recreation facilities in the region.

At present, the Northwest's needs for developed recreation facilities are relatively small. But as access to the region is improved, the demand for recreation facilities will greatly increase.

There is a need for the local level to coordinate its planning efforts in the Northwest Region with the State to preserve the region's unique natural character, to provide sound transportation and sewerage systems and other elements of regional development relating to the increase in tourism and tourist oriented accommodations, such as motels, campgrounds, and restaurants, which DWGNRA will generate.

At present, recreation facility needs are greatest at the local levels where not one of the three counties forming the Northwest Region has developed a county park system and municipal facilities are inadequate. County park systems should be established by the three counties immediately so that suitable land may be acquired at reasonable costs.

As illustrated in Table 7, the greatest need in this region is for outdoor games and sports facilities. Presently, outdoor games and sports facilities are needed to accommodate an unmet demand of 10,935 people. By the year 1985, the need will reach 15,465 people and by 2000, if sufficient facilities have been developed to satisfy the 1985 need, an unmet demand of 10,500 people will still remain. The majority of the games and sports facilities needed in 1985 and 2000 should be developed by the local levels of government because the responsibility for the provision of such facilities has traditionally rested with these jurisdictions. The private sector can be expected to satisfy a small part of the need by developing golf courses in the region to complement resort developments and recreation complexes.

A critical need for bicycle trails exists due to the fact that at present there are no designated bicycle trails in the Northwest Region and there is a bicycling demand of 6,600 people. By 1985, the need for bicycle trails will approach 8,300 people and by the year 2000 this need will increase by an additional 2,400 people. The municipalities should provide over half of the 461 miles of bicycle trails required by 1985 by developing bicycle paths in municipal parks and establishing designated bicycle thoroughfares within municipal residential street systems which safely separate bicyclists from motorized vehicles, while the county and state levels should provide for the remainder

of the needs by constructing bicycle paths in recreation areas and along routes utilizing highway rights-of-way.

Additional boating facilities are needed within this region to accommodate a present unmet boating demand of 2,559 people which will grow to 9,181 people by 1985. Between 1985 and 2000, the region's unmet boating demand will increase by 8,470 people. The primary responsibility for satisfying the region's boating demands rests with those owning substantial water surface acreages: federal, state and the private sector.

By 1985, there will be an unmet demand for picnicking facilities in the Northwest Region of 7,640 people. This unmet demand will increase by 11,116 people by the year 2000. In terms of facilities, 1,528 additional picnic tables will be needed by 1985 and 3,751 tables by 2000. State and federal levels of government should provide the majority of the picnic tables in their expansive recreation areas with municipalities, counties and the private sector providing the remainder.

Although the Northwest Region has an abundance of water resources suitable for ice skating and enjoys weather conditions generally conducive to ice formation, there is a need for artificial ice skating areas that will allow ice skating independent of weather conditions. Counties should assume the greatest share of the responsibility for providing the aggregate sum of one acre of artificial ice that will be required by 2000 to satisfy the ice skating demand of 1,400 people.

The existing regional supply of snow skiing facilities is sufficient to meet the 1970 demand for skiing within the Northwest Region. However, with the addition of out region demand in 1985 and 2000, the adjusted demand is greater than the 1970 supply by 12,280 people in 1985 and by 14,520 people in 2000. The northern regions of the State are the logical recipients of this out region demand because so few of the southern areas are suitable climatically or physiographically to satisfy this demand. Since most of this demand comes from outside the region, responsibility for providing the needed facilities must rest with the State and private enterprise.

At present and in 1985, there appears to be no need for swimming facility development, but by 2000 there will be a need for additional swimming facilities to accommodate 37,528 people. The Federal Government should provide for nearly one third of this need at DWGNRA. At the local level, municipalities should provide an equal share of the swimming accommodations for use by local residents.

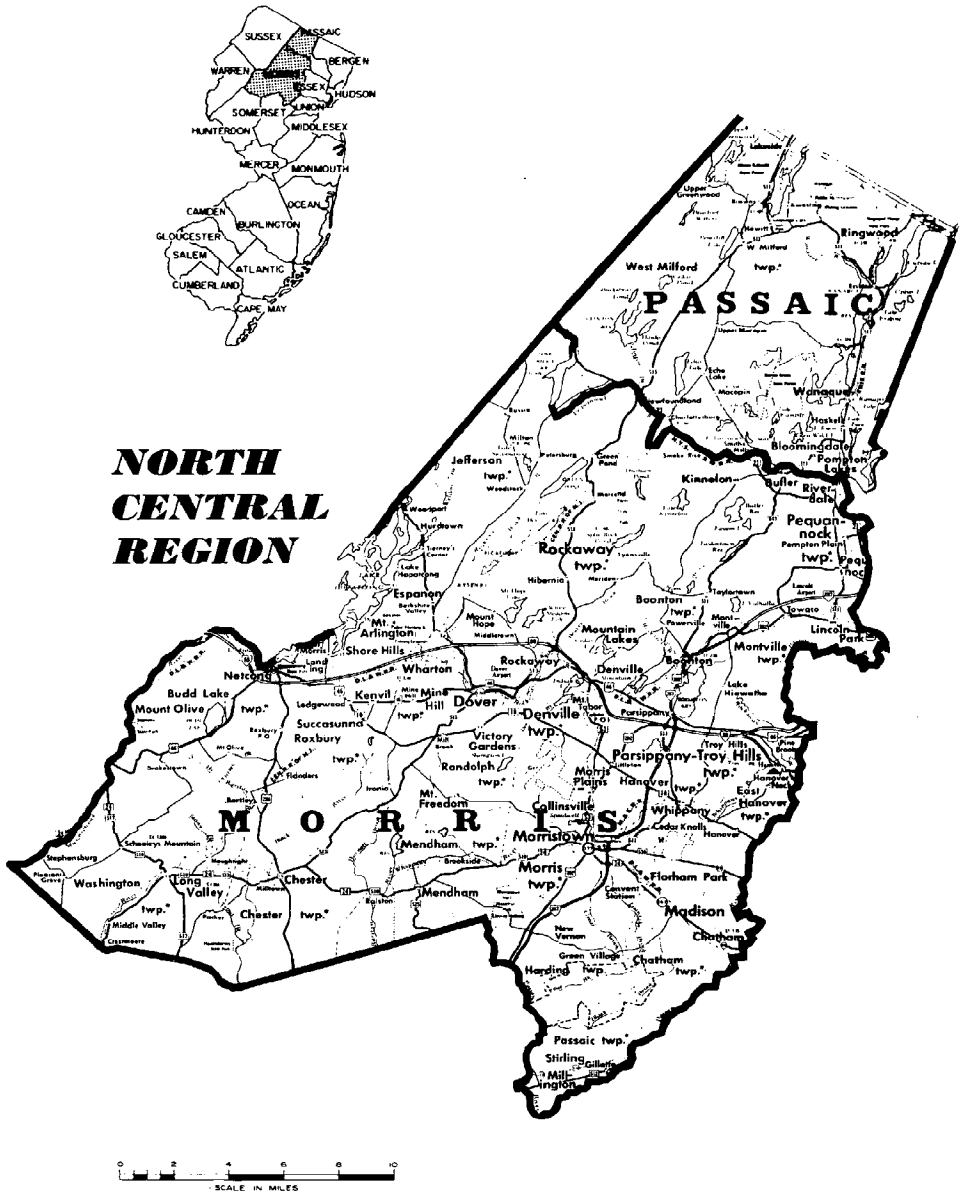
The 1970 supply of hiking and hunting facilities is adequate to meet demand for these activities through 1985. By the year 2000, however, demand will exceed supply by 320 miles of hiking trails and 4,720 acres of hunting. The State and private sector can be expected to continue to play the major role in providing hiking trails although the Federal Government, by development of the DWGNRA, may substantially increase available trail mileage in the Northwest Region. Hunting is largely a state responsibility and, since hunting requires large tracts of undeveloped land, the State should assume major responsibility for meeting future hunting needs, especially in the Northwest which has abundant resources suitable for this type of activity.

NORTH CENTRAL REGION

Possessing numerous lakes and ponds, unspoiled natural beauty, and varied physiographic conditions, the North Central Region has vast potential for recreational use. But, like its neighboring rural Northwest Region, a lack of sufficient access has inhibited development and use of the region's recreation resources. Since the North Central Region is on the fringe of intense urbanization, improvements in the transportation system will result in dramatic increases in the use of the region's recreation facilities.

Advanced planning is required at the regional level to insure the provision of adequate recreation facilities and the preservation of significant natural resources during the region's future urban growth.

At present, as shown in Table 8, the greatest needs for this region are for outdoor games and sports and bicycling facilities. The 1970 demand for outdoor games and sports in the North Central Region outstrips the existing facility capacity by 18,325 people and by 1985 this unmet demand will reach 32,625 people. To meet the expected 2000 demand for outdoor games and sports opportunities, the capacity of existing facilities will have to be increased by 21,100 people above the 1985 capacity requirements. Likewise, the demand for bicycling greatly



exceeds the capacity of existing designated bicycle trails. The 1970 bicycle needs of 11,028 people or 613 miles of designated trails will increase by the year 2000 to 19,728 people if additional facilities are not provided in the region. Most of the facilities for outdoor games and sports and bicycling to meet the region's needs should be developed by the municipalities for close-to-home opportunities. Counties share part of the local responsibility for close-to-home opportunities and therefore should supplement the municipal facilities particularly with the development of golf courses.

Much of the North Central Region's potential for backwoods oriented activities has not been realized as evidenced by the present unmet demands for camping and horseback riding of 4,700 and 1,421 people respectively. Facility needs for camping, the fastest growing outdoor recreation activity, will soar to 8,700 people in 1985. To meet the anticipated demand for horseback riding in the year 2000, 655 miles of trails to accommodate 7,851 people must be developed. County park systems have been giving land acquisition priority regarding recreation development in order to purchase the most desirable areas before they are consumed by urbanization. Future county development of these lands for camping and horseback riding will satisfy a part of the region's needs for these activities. On state owned lands, there is ample opportunity to expand existing recreation facilities to satisfy a substantial part of the region's unmet demands for these backwoods oriented activities. In response to the expected growth of the recreation market for these activities, the commercial segment of the private sector should continue developing new facilities and remain the region's major supplier.

Although the North Central is commonly referred to as the "lake region" because it possesses one of the greatest concentrations of glacial lakes on the eastern seaboard, the region has a present unmet boating demand of 3,113 people that will grow to 30,596 by 2000 if additional facilities are not provided. The state and county levels share the public responsibility for constructing new boating facilities. The commercial segment is expected to continue its role as a major supplier of boating accommodations by developing more boating facilities, espe-

cially as accompanying facilities to campgrounds and day use and resort swimming developments.

Although the existing supply of swimming facilities appears sufficient to satisfy the region's present demand and the projected 1985 demand, there is a slight need for pools in urban areas. By the year 2000, the demand for swimming is expected to exceed present swimming accommodations by 28,281 people. Since the provision of swimming facilities has proven profitable for private enterprise, private capital can be expected to develop a significant portion of the region's future swimming facilities. A severe need for swimming facilities will be experienced at the municipal level as the increase in population generates a home demand that outstrips the existing locally provided facilities. Municipalities are expected to assume this responsibility and develop considerably more swimming facilities as the growth in population creates a larger tax base permitting expansion of municipal recreation programs and facilities. The state and county levels of government can also be expected to make significant contributions to the region's swimming facilities supply.

By the year 2000, the region's unmet picnicking demand will be over 28,500 persons on an average weekend day. To satisfy this burgeoning demand for picnicking the various levels of government will need to provide 5,740 additional tables. Picnicking needs generated by the region's residential population fall upon county and municipal governments, because picnicking, viewed as an activity in itself, is generally sought at sites within a 15 minute drive from one's place of residence. The picnicking needs generated by sightseers visiting recreation areas in the region should be accommodated by state and privately provided facilities.

In the North Central Region there are no outdoor artificial ice skating areas. The 1970 demand for such facilities is 1,100 people and will grow to 2,600 people by the year 2000 if the 1.8 acres of artificial ice skating areas required to meet the demand are not developed. Prime responsibility for the provision of artificial ice skating areas rests with the counties since this jurisdiction has the ability to place the facilities close to the population centers and the financial resources to develop the facilities.

Existing facilities appear to be sufficient to satisfy the present demand for snow skiing in this region. But the demand for snow skiing will outstrip existing facilities resulting in a regional unmet demand of 4,500 persons on an average peak season weekend day in 1985 and another 5,400 in the year 2000. Since the North Central Region is one of the two regions in New Jersey possessing suitable physiographic conditions for ski facility development, much of the snow skiing demand of the State's other regions will have to be satisfied in this region. Most of the region's future snow skiing needs will be satisfied at facilities developed by private capital since this type of recreation development is profitable for private investment. However, the many county parks in the region possessing suitable physiographic conditions for snow skiing should be developed to satisfy the need for inexpensive day use snow skiing opportunities. Suitable snow skiing sites on state land should also be developed.

Passaic River

Although sufficient hunting acreage exists in the region at the present time, 12,060 additional acres will be required by the year 2000 to satisfy the hunting desires of 2,412 people. Under the Green Acres Programs, the State should be able to acquire sufficient acreage to satisfy most of the region's future hunting needs. The opening of privately owned tracts to the general public for hunting should alleviate the remaining hunting needs of the region.

TABLE 8: NORTH CENTRAL REGION – PRESENT AND FUTURE DEVELOPED RECREATIONAL FACILITY NEEDS

	1970					1985				2000			
	Demand	Supply		Surplus or Deficit		Demand	Surplus or Deficit		Jurisdictional	Demand	Surplus or Deficit		Jurisdictional
	people	facilities [1]	people [2]	facilities [3]	people [4]	people [5]	facilities [6]	people [7]	Responsibility [8]	people	facilities [9]	people [10]	Responsibility
Swimming	73,500		137,361		(63,861)	105,300		(26,777)		153,500		28,281	Municipal – 6455
						+ 5,284				+12,142			County – 3228
Permanent Pools		84				110,584				165,642	51		State – 8085 (2743)
													Private – 10,513 (4115)
Feet of Shoreline		44,174									14,140		
Acres of Beach		5.5									65		
Boating	15,100		11,987		3,113	21,700		15,356	County – 1943	32,200		15,240	County – 2100
						+5,643			State – 5578 (2257)	+10,383			State – 5622 (1896)
Areas		2		104		27,343	512		Private – 5014 (1975)	42,583	508		Private – 5148 (1659)
									Reservoirs – 2821 (1411)				Reservoirs – 2370 (1185)
Ramps		4		26			128				127		
Berths		3,750		1,038			5,119				5,080		
Water Acreage		197		3,113			15,356				15,240		
Fishing	20,500		46,295		(25,795)	24,800		(21,319)		33,000		(11,393)	
						+ 176				+1,902			
No. of Facilities		68				24,976				34,902			
Water Acres		320											
Miles of Shoreline		144.3											
Camping	6,500		1,800		4,700	10,500		8,700	County – 3480	16,900		6,400	County – 2560
									State – 3480				State – 2560
Family Sites		450		1,175			2,175		Private – 1740		1,600		Private – 1280
Hiking	2,900		12,067		(9,167)	5,000		(5,271)		7,900		(781)	
						+1,796				+3,386			
Miles		737.2				6,796				11,286			
Bicycling	11,100		72		11,028	14,700		14,628	Municipal – 8776	19,800		5,100	Municipal – 3060
									County – 2926				County – 1020
Miles		4		613			813		State – 2926		283		State – 1020
Horseback Riding	1,900		479		1,421	2,400		5,971	Municipal – 385	3,200		1,880	Municipal – 160
						+4,050			County – 576	+5,130			County – 240
Miles		39.9		118		6,450	498		State – 1194 (810)	8,330	157		State – 376 (216)
									Private – 3816 (3240)				Private – 1104 (864)

[1] Includes Municipal, County, State, Interstate, Federal and Private facilities.
[2] Total estimated capacity of 1970 facility supply.
[3] Indicates total number of facilities necessary to satiate unmet 1970 demand for each type of facility.
[4] Represents deficit or (surplus) of 1970 supply of facilities in terms of capacity to meet 1970 demand.
[5] Represents regional demand and where necessary addition of demand from other regions or subtraction of regional demand distributed to other regions to determine an adjusted regional demand.
[6] Indicates total number of facilities necessary to satiate unmet 1985 adjusted demand for each type of facility.
[7] Represents deficit or (surplus) of 1970 supply of facilities in terms of capacity to meet 1985 adjusted demand.
[8] Apportioned share of the facility capacity deficit which should be accommodated by the various jurisdictions within the region based upon their responsibilities and capabilities. That portion of a jurisdiction's responsibility which was apportioned from out region demand is shown in brackets. Below the dotted line the demand assigned to other regions is distributed to the receiving regions. (*Private sector includes commercial enterprises, quasi-public organizations and private or restricted membership clubs.*)
[9] Indicates total number of facilities necessary to satiate unmet demand for each type of facility assuming the 1985 deficit has been met.
[10] Represents deficit or (surplus) of supply of facilities in terms of capacity to meet 2000 adjusted demand assuming the 1985 supply deficit has been met.

TABLE 8: NORTH CENTRAL REGION (continued)

	1970					1985				2000			
	Demand people	Supply facilities[1]	Supply people[2]	Surplus or Deficit facilities[3]	Surplus or Deficit people[4]	Demand people[5]	Surplus or Deficit facilities[6]	Surplus or Deficit people[7]	Jurisdictional Responsibility[8]	Demand people	Surplus or Deficit facilities[9]	Surplus or Deficit people[10]	Jurisdictional Responsibility
Nature Interpretive Facilities (includes trails, displays and centers)	10,500	These facilities should be developed where ecologically significant conditions exist.				13,100				17,600			
Hunting	5,200		5,540		(340)	5,600		1,322	State – 1031 (1010)	6,600		1,090	State – 822 (72)
						+1,262			Private – 291 (252)	+1,325			Private – 268 (18)
Acres		27,699				6,862	6,610			7,952	5,450		
Picnicking	25,700		23,865		1,835	33,500		13,468	Municipal – 1445	46,300		15,230	Municipal – 1920
						+3,833			County – 3854	+6,263			County – 5120
Acres		484		46		37,333	337		State – 7422 (3258)	52,563	381		State – 7717 (2065)
									Private – 747 (575)				Private – 473 (365)
Tables		901		367			2,694				3,046		
Ice Skating – Natural	64,700		225,781		(161,081)	99,800		(125,981)		147,900		(75,881)	
No. of Sites		37											
Acres		277											
Ice Skating – Artificial	1,100				1,100	1,800		1,800	Municipal – 360	2,600		800	Municipal – 160
									County – 1260				County – 560
Acres				.8			1.2		Private – 180		.6		Private – 80
Snow Skiing	2,700		4,400		(1,700)	4,100		4,500	State – 675 (675)	6,700		5,400	County – 230
						+4,800			Private – 3825 (3825)	+7,600			State – 925 (420)
Acres		147				8,900	150			14,300	180		Private – 4245 (2380)
Outdoor Games & Sports	31,800		13,475		18,325	46,100		32,625	Municipal – 22838	67,200		21,100	Municipal – 14770
									County – 4894				County – 3165
Playgrounds		89		367			653		State – 1631		422		State – 1055
									Private – 3262				Private – 2110
Open Playfields		237		916			1,631				1,055		
Game Courts		321		1,833			3,263				2,110		
Golf - 18 holes		9		244			435				281		
Golf - 9 holes		6		458			816				528		
Golf - Par 1		8		916			1,631				1,055		

[1] Includes Municipal, County, State, Interstate, Federal and Private facilities.
[2] Total estimated capacity of 1970 facility supply.
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[4] Represents deficit or (surplus) of 1970 supply of facilities in terms of capacity to meet 1970 demand.
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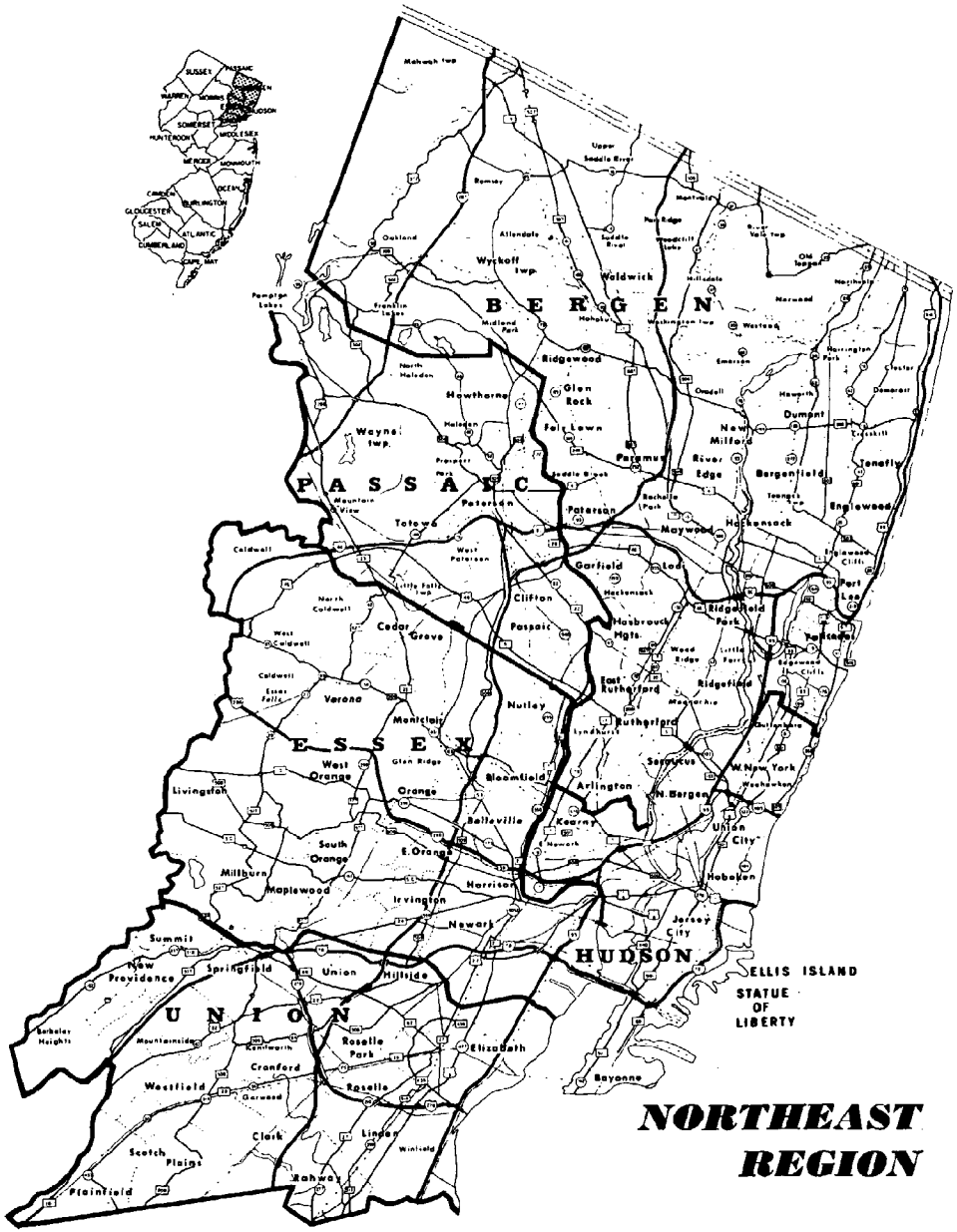
[6] Indicates total number of facilities necessary to satiate unmet 1985 adjusted demand for each type of facility.
[7] Represents deficit or (surplus) of 1970 supply of facilities in terms of capacity to meet 1985 adjusted demand.
[8] Apportioned share of the facility capacity deficit which should be accommodated by the various jurisdictions within the region based upon their responsibilities and capabilities. That portion of a jurisdiction's responsibility which was apportioned from out region demand is shown in brackets. Below the dotted line the demand assigned to other regions is distributed to the receiving regions. (Private sector includes commercial enterprises, quasi-public organizations and private or restricted membership clubs. Reservoirs are non-state, public water supply reservoirs.)
[9] Indicates total number of facilities necessary to satiate unmet demand for each type of facility assuming the 1985 deficit has been met.
[10] Represents deficit or (surplus) of supply of facilities in terms of capacity to meet 2000 adjusted demand assuming the 1985 supply deficit has been met.



NORTHEAST REGION

The Northeast Region with nearly half (47%) of New Jersey's population within its boundaries is the State's most urbanized region and has the largest gap between the supply of developed recreation facilities and the demand for outdoor recreation opportunities of the eight study regions. For nearly all recreation activities there is a critical need for additional developed facilities, now and in the future. To satisfy this urgent need, intensive facility development will characterize this region's recreation sites in the future. Intense competition for land is likely to prevent the development of large scale state park type recreation areas and the provision for activities that require extensive land areas. Therefore, the region's populace will be forced to seek such opportunities in other regions and some of the demand for eight activities has been transferred to other regions for 1985 and 2000.

As shown in Table 9, the region's greatest needs, at present, are for the home oriented activities of bicycling and playing outdoor games and sports. The unmet demand in this region for bicycling facilities amounts to 46,692 people now and is expected to jump to 62,092 people by 1985. During the fifteen year span between 1985 and the year 2000, the region's demand for bicycling opportunities will increase by another 19,500 people. In terms of facilities, 4,533 miles of designated trails will be needed to satisfy the year 2000 bicycling demand. To offset this need for bicycling facilities, local levels of government must take advantage of every opportunity to develop new trails. Designated bicycle thoroughfares should be established within municipal street systems which safely separate bicyclists from motorized vehicle traffic. Similarly, the state and county levels should consider developing bicycle paths along routes with sufficiently wide rights-of-way.

At present, the demand for outdoor games and sports opportunities exceeds the supply of facilities by 33,715 people. By 1985, this unmet demand will soar to 94,715 people and to 168,315 people by the year 2000. The prime responsibility for the provision of outdoor games and sports facilities rests with the municipalities and, to a lesser extent, the counties. If the local demands for outdoor games and sports facilities are to be

met, these jurisdictions must acquire additional recreation sites within urban centers. Such sites need not be large since many games and sports activities require limited space. In addition to developing new recreation areas, local levels of government should examine existing recreation areas to determine where additional facilities can be built. It is likely that because of the scarcity of land, innovative techniques such as using rooftops of large buildings will have to be employed to meet future needs. Since playing outdoor games and sports is one of the primary outdoor recreation pursuits of urban youth, a variety of facilities should be provided within walking distance of all urban residents.

Existing swimming facilities are insufficient to handle the region's present swimming demand, resulting in a current unmet demand of 9,675 people. Even after assigning 30% of its projected needs to other regions, the Northeast's unmet swimming demand will amount to 61,653 people by 1985 and climb to 141,663 people by the year 2000. For the most part, the region's swimming needs will be met by pool construction. The commercial, quasi-public and private sector, which supplies 72% of the existing swimming capacity in the region, can be expected to develop a substantial number of swimming pools in the form of commercial swim clubs and private country clubs. The trend toward forming municipally sponsored swim clubs in this region will satisfy, in part, the local needs. But swimming facilities with membership requirements or high user fees will not benefit the majority of the region's residents. Municipalities will have to provide swimming facilities free of excessive fees and membership restrictions within easy travel distance of residents. To supplement the municipal facilities, new public swimming pools should be developed in the county park systems.

Significant portions of the Northeast's projected unmet demands for boating (70%) and fishing (50%) opportunities will have to be satisfied outside the region. Therefore, the regional facility deficits for these activities for 1985 and 2000 have been adjusted to reflect just the needs which can be met within the region. The 1985 facility deficits for boating and fishing will amount to 12,094 people and 500 people, respectively. By the year 2000, without the development of additional facilities, the unmet demand for boating will increase to 19,204 people while the fishing needs will grow to 5,900 people. The responsibility for developing the launching ramps, access points, and marinas required to satisfy the region's projected boating needs falls upon municipal, county and state jurisdictions and the private sector. Since a large portion of the region's projected unmet fishing demands have been assigned to other regions, the majority of the region's remaining needs should be met by facilities provided by local levels of government for close-to-home opportunities. (See Water Resources: Needs, Problems and Potential.)

A substantial portion of the Northeast Region's needs for hiking and equestrian trails will, out of necessity, be met outside the region. At present, the Northeast Region needs 274 miles of hiking trails and 687 miles of bridle trails to satisfy the unmet demands for these activities of 4,376 people and 8,248 people, respectively. Without future facility development, the region's needs will increase by the year 2000 to 9,031 people for hiking and 7,836 people for horseback riding. Within the region, counties must assume the major responsibility for

TABLE 9: NORTHEAST REGION — PRESENT AND FUTURE DEVELOPED RECREATIONAL FACILITY NEEDS

	1970					1985				2000			
	Demand	Supply		Surplus or Deficit		Demand	Surplus or Deficit		Jurisdictional	Demand	Surplus or Deficit		Jurisdictional
	people	facilities[1]	people[2]	facilities[3]	people[4]	people[5]	facilities[6]	people[7]	Responsibility[8]	people	facilities[9]	people[10]	Responsibility
Swimming	154,800		145,125		9,675	233,200 −26,422 206,778		61,653	Municipal — 48,441 County — 4,404 Private — 8,808 --- Other Regions — 26,422 NW — 7,927; NC — 5,284 NS — 10,569; SS — 2,642	347,500 −60,712 286,788		80,010	Municipal — 62,865 County — 5,715 Private — 11,430 --- Other Regions — 34,290 NW — 10,287; NC — 6,858; NS — 13,716; SS — 3,429
Permanent Pools		182		17			111				144		
Feet of Shoreline		20,535		4,838			30,827				40,005		
Acres of Beach		7		22			141				184		
Boating	32,100		9,990		22,110	50,300 −28,216 22,084		12,094	Municipal — 2,016 County — 2,016 State — 4,031 Private — 4,031 --- Other Regions — 28,216 NW — 2,822; NC — 5,643; NS — 11,286; SS — 8,465	74,000 −44,806 29,194		7,110	Municipal — 1,185 County — 1,185 State — 2,370 Private — 2,370 --- Other Regions — 16,590 NW — 6,636; NC — 4,977; NS — 3,318; SS — 1,659
Areas		5		737			403				237		
Ramps		7		184			101				59		
Berths		3,000		7,370			4,031				2,370		
Water Acreage				22,110			12,094				7,110		
Fishing	21,700		28,400		(6,700)	29,400 − 500 28,900		500	Municipal — 250 County — 200 State — 50 --- Other Regions — 500 NW — 200; NC — 75 NS — 225	40,200 −5,900 34,300		5,400	Municipal — 2,700 County — 2,160 State — 540 --- Other Regions — 5,400 NW — 2,160; NC — 785 NS — 2,455
No. of Facilities		16					10				108		
Water Acres		344					167				1,800		
Miles of Shoreline		85					2				20		
Camping	2,000		1,400		600	3,300		1,900	County — 190 Private — 1,710	5,300		2,000	County — 200 Private — 1,800
Family Sites		350		150			475				500		
Hiking	10,000		5,624		4,376	17,600 −7,185 10,415		4,791	Municipal — 1,198 County — 2,395 State — 599 Private — 599 --- Other Regions — 7,185 NW — 5,389; NC — 1,796	28,200 −13,545 14,655		4,240	Municipal — 1,060 County — 2,120 State — 530 Private — 530 --- Other Regions — 6,360 NW — 4,770; NC — 1,590
Miles		351.5		274			299				265		
Bicycling	46,800		108		46,692	62,200		62,092	Municipal — 52,778 County — 6,209 State — 3,105	81,700		19,500	Municipal — 16,575 County — 975 State — 1,950
Miles		6		2,594			3,450				1,083		
Horseback Riding	9,100		852		8,248	12,100 −5,062 7,038		6,186	County — 2,812 Private — 3,374 --- Other Regions — 5,062 NC — 4,050; CC — 1,012	15,100 −6,412 8,688		1,650	County — 750 Private — 900 --- Other Regions — 1,350 NC — 1,080; CC — 270
Miles		71		687			516				138		

[1] Includes Municipal, County, State, Interstate, Federal and Private facilities.
[2] Total estimated capacity of 1970 facility supply.
[3] Indicates total number of facilities necessary to satiate unmet 1970 demand for each type of facility.
[4] Represents deficit or (surplus) of 1970 supply of facilities in terms of capacity to meet 1970 demand.
[5] Represents regional demand and where necessary addition of demand from other regions or subtraction of regional demand distributed to other regions to determine an adjusted regional demand.
[6] Indicates total number of facilities necessary to satiate unmet 1985 adjusted demand for each type of facility.
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[9] Indicates total number of facilities necessary to satiate unmet demand for each type of facility assuming the 1985 deficit has been met.
[10] Represents deficit or (surplus) of supply of facilities in terms of capacity to meet 2000 adjusted demand assuming the 1985 supply deficit has been met.

TABLE 9: NORTHEAST REGION (continued)

	1970					1985				2000			
	Demand	Supply		Surplus or Deficit		Demand	Surplus or Deficit		Jurisdictional	Demand	Surplus or Deficit		Jurisdictional
	people	facilities[1]	people[2]	facilities[3]	people[4]	people[5]	facilities[6]	people[7]	Responsibility[8]	people	facilities[9]	people[10]	Responsibility
Nature Interpretive Facilities (includes trails, displays and centers)	23,900	These facilities should be developed where ecologically significant conditions exist.				32,200				42,800			
Hunting	10,400		181		10,219	12,800			Other Regions – 12,619	13,700			Other Regions – 900
						−12,619			NW – 8,833; NC – 1,262;	−13,519			NW – 630; NC – 90;
Acres		907		51,095		181			NS – 1,262; SS – 1,262	181			NS – 90; SS – 90
Picnicking	64,800		38,795		26,005	89,900		35,773	Municipal – 10,221	122,300		22,680	Municipal – 6,480
						−15,332			County – 25,552	−25,052			County – 16,200
Acres		271		650		74,568	893		- - - - - - - - - - - - - -	97,248			- - - - - - - - - - - - - -
									Other Regions – 15,332		567		Other Regions – 9,720
Tables		5,591		5,201			7,145		NW – 4,600; NC – 3,833;				NW – 2,916; NC – 2,430;
									NS – 6,133; SS – 766		4,536		NS – 3,888; SS – 486
Ice Skating – Natural	215,800		327,326		(111,526)	331,100		3,774	Municipal – 1132	484,900		153,800	Municipal – 46140
									County – 2265				County – 92280
No. of Sites		14					6		State – 377		231		State – 15,380
Acres		435					5				212		
Ice Skating – Artificial	17,200		1,888		15,312	26,500		24,612	Municipal – 4922	38,800		12,300	Municipal – 2460
									County – 17229				County – 8610
Acres		1.1		10.5			17		Private – 2461		8.5		Private – 1230
Snow Skiing	1,600		850		750	2,900		205	County – 205	4,600		170	County – 170
						−1,845			- - - - - - - - - - - - - -	−3,375			- - - - - - - - - - - - - -
Acres		28		25		1,055	7		Other Regions – 1,845	1,225	6		Other Regions – 1,530
									NW – 738; NC – 1,107				NW – 612; NC – 918
Outdoor Games & Sports	121,900		88,185		33,715	182,900		94,715	Municipal – 75,772	256,500		73,600	Municipal – 58880
									County – 14207				County – 11040
Playgrounds		716		674			1,894		State – 4736		1,472		State – 3,680
Open Playfields		1,416		1,686			4,736				3,680		
Game Courts		2,014		3,372			9,472				7,360		
Golf – 18 holes		43		450			1,263				981		
Golf – 9 holes		12		843			2,368				1,840		
Golf – Par 3		11		1,686			4,736				3,680		

[1] Includes Municipal, County, State, Interstate, Federal and Private facilities.
[2] Total estimated capacity of 1970 facility supply.
[3] Indicates total number of facilities necessary to satiate unmet 1970 demand for each type of facility.
[4] Represents deficit or (surplus) of 1970 supply of facilities in terms of capacity to meet 1970 demand.
[5] Represents regional demand and where necessary addition of demand from other regions or subtraction of regional demand distributed to other regions to determine an adjusted regional demand.
[6] Indicates total number of facilities necessary to satiate unmet 1985 adjusted demand for each type of facility.
[7] Represents deficit or (surplus) of 1970 supply of facilities in terms of capacity to meet 1985 adjusted demand.
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[9] Indicates total number of facilities necessary to satiate unmet demand for each type of facility assuming the 1985 deficit has been met.
[10] Represents deficit or (surplus) of supply of facilities in terms of capacity to meet 2000 adjusted demand assuming the 1985 supply deficit has been met.

providing hiking trails since they are the only jurisdiction which administers suitable areas of sufficient size for trail development. The private sector is expected to play a significant role in the development of future bridle trails within the Northeast Region. However, bridle trails should also be developed in county park systems for the people who cannot afford to use the private sector's facilities.

A critical need exists for more picnicking facilities at the municipal and county levels. Despite the provision in this region of a major portion of New Jersey's total picnicking capacity, the sheer number of people who reside in the region produce a need for more picnicking facilities at sites close to their homes. Faced with a present unmet demand of 26,005 people seeking to use picnicking facilities on an average peak season weekend day, 5,201 more picnic tables must be provided to supplement existing county and municipal picnic facilities. The responsibility for supplying adequate picnic facilities must, out of necessity, rest at the local level in the region. In the future much of this demand will be absorbed by less developed regions which are also able to provide related activities such as swimming and boating.

The private sector is expected to be the major developer of new camping facilities in the Northeast Region. Close campsite spacing and the provision of few auxiliary recreation facilities will most likely characterize private campgrounds in the future. For the most part, the Northeast's camping demand will be generated by tourists seeking inexpensive overnight accommodations, and therefore, the private sector, contending with escalating land prices and rising property taxes, will break from the traditional concept of campground development and provide only the bare minimum of facilities in order to keep user fees low. However, there will be a continuing need for traditional campgrounds in the region and the counties should develop such facilities wherever possible.

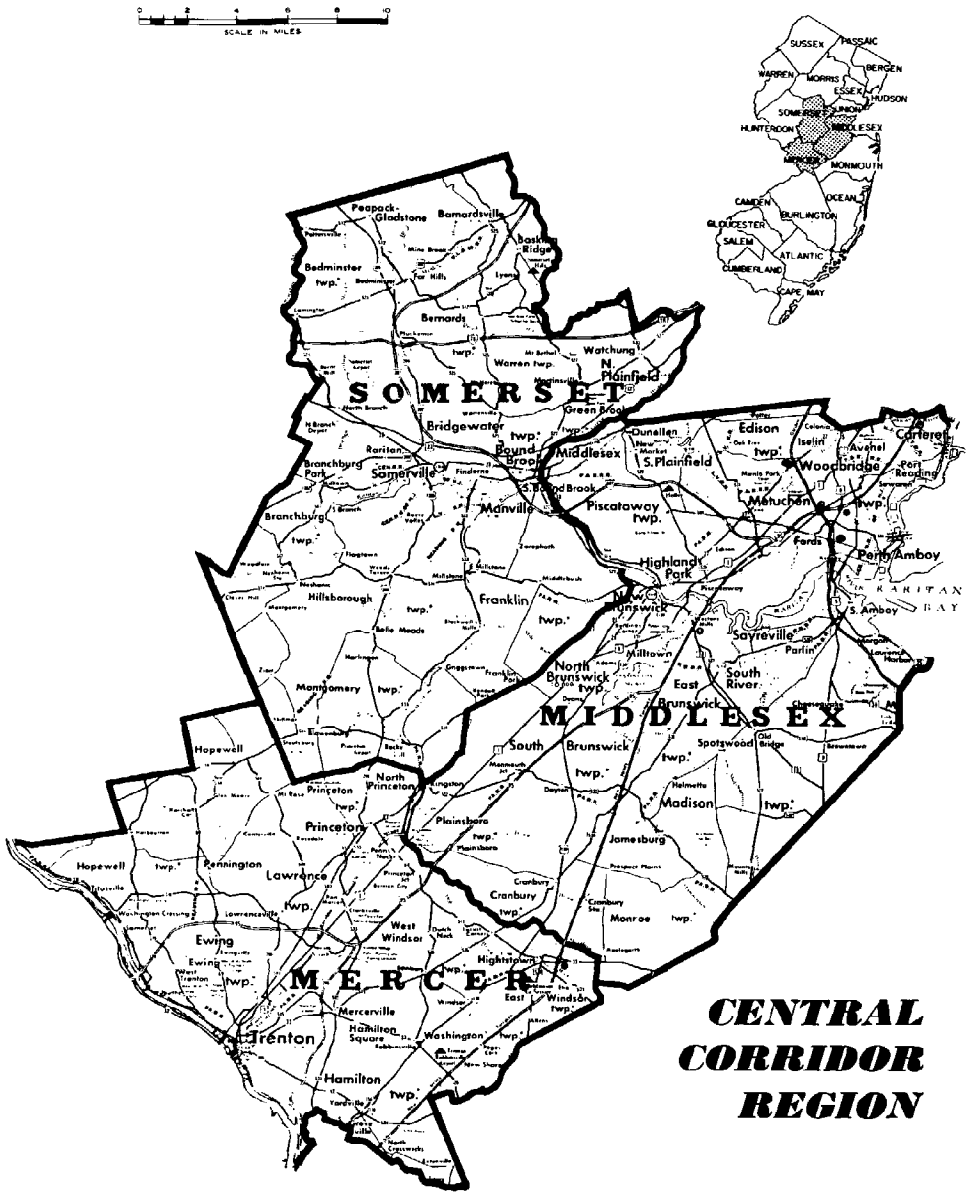
In the future, ice skating demand will outstrip the capacity of the region's existing supply of natural and artificial ice skating areas. Over two hundred acres of water surface will be needed by the year 2000 to satisfy the region's demand for natural ice skating opportunities. In addition, 25.5 more acres of artificial ice skating areas will be required to satisfy the year 2000 demand. Since opportunities to ice skate are most frequently sought close to home, local levels of government will have to provide most of the future facilities.

The majority of the demand for snow skiing must be met outside the Northeast Region because of the lack of development opportunities. County parks within the region with suitable slopes, e.g., golf courses, should develop skiing facilities to provide day use opportunities within an hour's drive of the majority of the population.

CENTRAL CORRIDOR REGION

The Central Corridor Region, already the State's second most densely populated region, is still undergoing intense urbanization, and, as such, the most pressing need is for the acquisition of open space recreation land before all the land is developed or priced beyond the fiscal capabilities of local governments. The region's needs for developed facilities, at present, are not severe for most activities but this will change in the future as the region's growing population creates an expanded home recreation demand. However, local and state levels of government should continue buying land now with an eye to future development potential so as to preserve recreation and open space resources such as stream banks that would otherwise be lost.

As with other regions, the Central Corridor shows an urgent need for developed bicycling facilities. (Refer to Table 10.) The present unmet demand for bicycling opportunities of 15,646 people will soar by the year 2000 to 30,946 people. To satisfy the need for bicycle trails, the Central Corridor's jurisdictions will have to adopt practices similar to the ones recommended for other regions—provision of segregated bicycle thoroughfares within municipal street systems and the utilization of rights-of-way along state and county highways. The State's responsibility should also include the development of the Delaware and Raritan Canal's 60 mile towpath for bicycling.



CENTRAL CORRIDOR REGION

The Central Corridor Region's projected population growth is expected to lead to a high future home demand for outdoor games and sports opportunities and result in an acute need for this type of facility. At present, the region's need for outdoor games and sports facilities amounts to 5,605 people, but by the year 2000 this need will climb to 62,605 people. Opportunities to participate in outdoor games and sports are usually sought by people within a 15 minute drive from their homes and, therefore, primary responsibility for providing these facilities rests with local levels of government, particularly the municipality. Counties should supplement municipal facilities by developing sports complexes offering a wide range of facilities and by developing additional golf facilities.

In the future, facility needs for water-oriented activities in the Central Corridor Region will be considerable. The unmet demand for boating facilities, presently 7,211 people, will grow to over 25,000 people by the year 2000. If additional facilities are not provided for fishing, the present unmet demand of 1,795 people will increase to 4,076 in 1985 and to nearly 8,000 people by the year 2000. Although existing swimming facilities appear sufficient to accommodate the region's present demand, they will fall short of accommodating the 1985 demand by 12,901 people and the 2000 demand by 64,101 people. In order to satisfy the local boating needs, the counties and municipalities must expand existing facilities and develop new ones wherever possible. These facilities could take any one of a number of forms such as boat rentals, launching ramps and berths. Along with local development programs, the State should develop launching ramps for trailer drawn boats and access points for car-top boats along the Delaware River and provide for maximum utilization of the Delaware and Raritan Canal. A significant portion of the Central Corridor's fishing needs will be met by the new boating facilities provided by the municipalities, counties and the State. Because the major portion of the region's swimming demand is for opportunities close to home, municipalities and counties will have to assume responsibility for providing new swimming facilities, especially in urban areas in the form of swimming pools.

The Central Corridor Region, like the Northeast, shows a need for designated hiking trails and developed horseback rid-

TABLE 10: CENTRAL CORRIDOR REGION—PRESENT AND FUTURE DEVELOPED RECREATIONAL FACILITY NEEDS

	1970					1985				2000			
	Demand people	Supply facilities[1]	Supply people[2]	Surplus or Deficit facilities[3]	Surplus or Deficit people[4]	Demand people[5]	Surplus or Deficit facilities[6]	Surplus or Deficit people[7]	Jurisdictional Responsibility[8]	Demand people	Surplus or Deficit facilities[9]	Surplus or Deficit people[10]	Jurisdictional Responsibility
Swimming	56,700		76,199		(19,499)	89,100		12,901	Municipal – 7,741 County – 1,935 State – 1,290 Private – 1,935	140,300		51,200	Municipal – 30,720 County – 7,680 State – 5,120 Private – 7,680
Permanent Pools		98					23				92		
Feet of Shoreline		10,252					6,451				25,600		
Acres of Beach		3					30				118		
Boating	11,800		4,589		7,211	19,100		14,511	Municipal – 1,451 County – 4,353 State – 5,805 Private – 2,902	29,800		10,700	Municipal – 1,070 County – 3,210 State – 4,280 Private – 2,140
Areas		30		240			484				357		
Ramps		14		60			121				89		
Berths		565		2,404			4,837				3,567		
Water Acreage		314		7,211			14,511				10,700		
Fishing	9,400		7,605		1,795	12,700 -1,019 11,681		4,076	Municipal – 1,019 County – 1,019 State – 2,038 --- Other Regions – 1,019 NW – 459; NC – 101; NS – 459	18,000 -2,079 15,921		4,240	Municipal – 1,060 County – 1,060 State – 2,120 --- Other Regions – 1,060 NW – 477; NC – 106; NS – 477
No. of Facilities		9		36			82				85		
Water Acres		37		598			1,359				1,413		
Miles of Shoreline		25		7			15				16		
Camping	1,500		524		976	2,400		1,876	County – 1,125 State – 563 Private – 188	3,900		1,500	County – 900 State – 450 Private – 150
Family Sites		131		244			469				375		
Hiking	3,400		3,179		221	6,400		3,221	Municipal – 805 County – 1,127 State – 1,289	10,900		4,500	Municipal – 1,125 County – 1,575 State – 1,800
Miles		198.7		14			201				281		
Bicycling	15,700		54		15,646	22,100		22,046	Municipal – 13,228 County – 4,409 State – 4,409	31,000		8,900	Municipal – 5,340 County – 1,780 State – 1,780
Miles		3		869			1,225				494		
Horseback Riding	3,000		852		2,148	4,300 +1,012 5,312		4,460	County – 1,207 State – 1,115 (253) Private – 2,138 (759)	5,700 +1,282 6,982		1,670	County – 490 State – 418 (68) Private – 762 (202)
Miles		7		179			372				139		

[1]Includes Municipal, County, State, Interstate, Federal and Private facilities.

[2]Total estimated capacity of 1970 facility supply.

[3]Indicates total number of facilities necessary to satiate unmet 1970 demand for each type of facility.

[4]Represents deficit or (surplus) of 1970 supply of facilities in terms of capacity to meet 1970 demand.

[5]Represents regional demand and where necessary addition of demand from other regions or subtraction of regional demand distributed to other regions to determine an adjusted regional demand.

[6]Indicates total number of facilities necessary to satiate unmet 1985 adjusted demand for each type of facility.

[7]Represents deficit or (surplus) of 1970 supply of facilities in terms of capacity to meet 1985 adjusted demand.

[8]Apportioned share of the facility capacity deficit which should be accommodated by the various jurisdictions within the region based upon their responsibilities and capabilities. That portion of a jurisdiction's responsibility which, as apportioned from out region demand is shown in brackets. Below the dotted line the demand assigned to other regions is distributed to the receiving regions. (Private sector includes commercial enterprises, quasi-public organizations and private or restricted membership clubs.)

[9]Indicates total number of facilities necessary to satiate unmet demand for each type of facility assuming the 1985 deficit has been met.

[10]Represents deficit or (surplus) of supply of facilities in terms of capacity to meet 2000 adjusted demand assuming the 1985 supply deficit has been met.

TABLE 10: CENTRAL CORRIDOR REGION (continued)

	1970					1985				2000			
	Demand people	Supply facilities[1]	Supply people[2]	Surplus or Deficit facilities[3]	Surplus or Deficit people[4]	Demand people[5]	Surplus or Deficit facilities[6]	Surplus or Deficit people[7]	Jurisdictional Responsibility[8]	Demand people	Surplus or Deficit facilities[9]	Surplus or Deficit people[10]	Jurisdictional Responsibility
Nature Interpretive Facilities (includes trails, displays and centers)	8,600	These facilities should be developed where ecologically significant conditions exist.				12,100				17,100			
Hunting	3,800		207		3,593	4,900 -3,285 1,615		1,408	State – 1,173 Private – 235 Other Regions – 3,285	5,600 -3,775 1,825		210	State – 175 Private – 35 Other Regions – 490
Acres		1,034		17,965			7,040		NW – 1,642; NS – 329; SW – 821; SS – 493		1,050		NW – 245; NS – 49; SW – 122; SS – 74
Picnicking	23,000		42,280		(19,480)	33,400		(9,080)		48,500		6,020	Municipal – 1,240 County – 3,010 State – 1,806
Acres		842									151		
Tables		1,760									1,204		
Ice Skating – Natural	71,700		225,491		(153,791)	116,900		(108,591)		183,100		(42,391)	
No. of Sites		5											
Acres		306											
Ice Skating – Artificial	5,700				5,700	9,400		9,400	Municipal – 1,880 County – 6,580 Private – 940	14,700		5,300	Municipal – 1,060 County – 3,710 Private – 530
Acres				3.9			6.5				3.7		
Snow Skiing	900		1,225		(325)	1,500		275	County – 275	2,500		1,000	County – 1,000
Acres		41					9				33		
Outdoor Games & Sports	41,000		35,495		5,605	65,100		29,605	Municipal – 20,724 County – 4,441 State – 1,480 Private – 2,960	98,100		33,000	Municipal – 23,100 County – 4,950 State – 1,650 Private – 3,300
Playgrounds		291		112			592				660		
Open Playfields		623		280			1,480				1,650		
Game Courts		707		561			2,961				3,300		
Golf – 18 holes		17		75			395				440		
Golf – 9 holes		3		140			740				825		
Golf – Par 3		1		280			1,480				1,650		

[1] Includes Municipal, County, State, Interstate, Federal and Private facilities.
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[9] Indicates total number of facilities necessary to satiate unmet demand for each type of facility assuming the 1985 deficit has been met.
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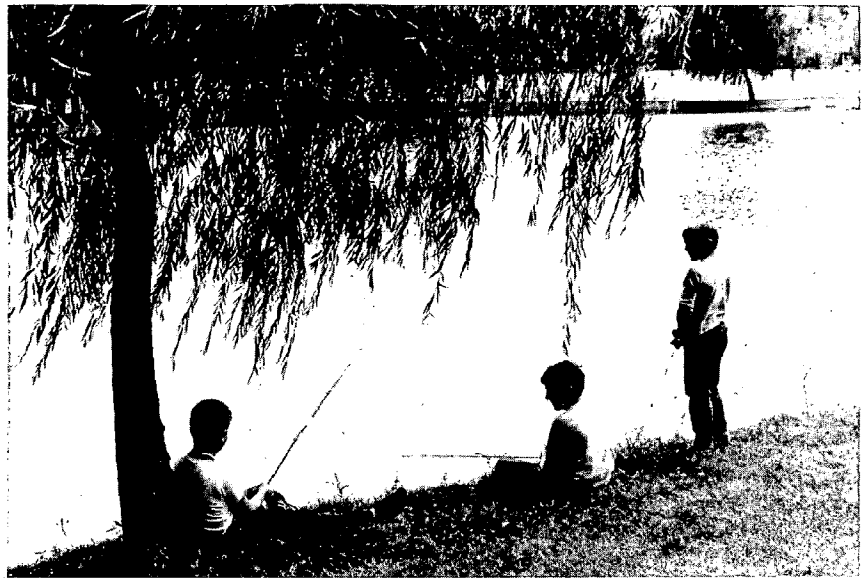
ing trails. To satisfy the year 2000 demands for hiking and horseback riding opportunities, 482 miles of hiking trails and 511 miles of bridle trails must be developed. The county and municipal levels should be able to develop a large share of the hiking trail mileage on lands purchased under future acquisition programs. But the State should also play a significant role in providing hiking opportunities by developing the Delaware and Raritan Canal's towpath for hiking and constructing new trails in state recreation areas for a semi-wilderness type of hiking experience. Because horseback riding facilities can be a profitable venture, the private sector is expected to develop substantial bridle trail mileage in the future to capitalize on the region's growing unmet horseback riding demand.

At present, 244 family campsites are needed to accommodate the region's unmet camping demand of 976 people. By the year 2000, the region's camping needs will have increased to 3,376 people requiring the development of 844 campsites. As with hiking and horseback riding facilities, counties should develop most of the region's future camping facilities in existing and planned county parks. At the state level the expansion of existing campgrounds should be considered and the development of new campgrounds at existing and proposed recreation areas should be planned.

Existing facilities are sufficient to satisfy the region's present and 1985 demand for picnicking. But by the year 2000, the demand for picnicking opportunities will outstrip existing facilities resulting in a regional deficit of 1,204 picnic tables. The majority of the region's future picnicking facilities should be developed by the municipal and county levels since picnicking opportunities are most sought close to one's place of residence. The remainder of the region's picnicking needs should be accommodated at state recreation areas.

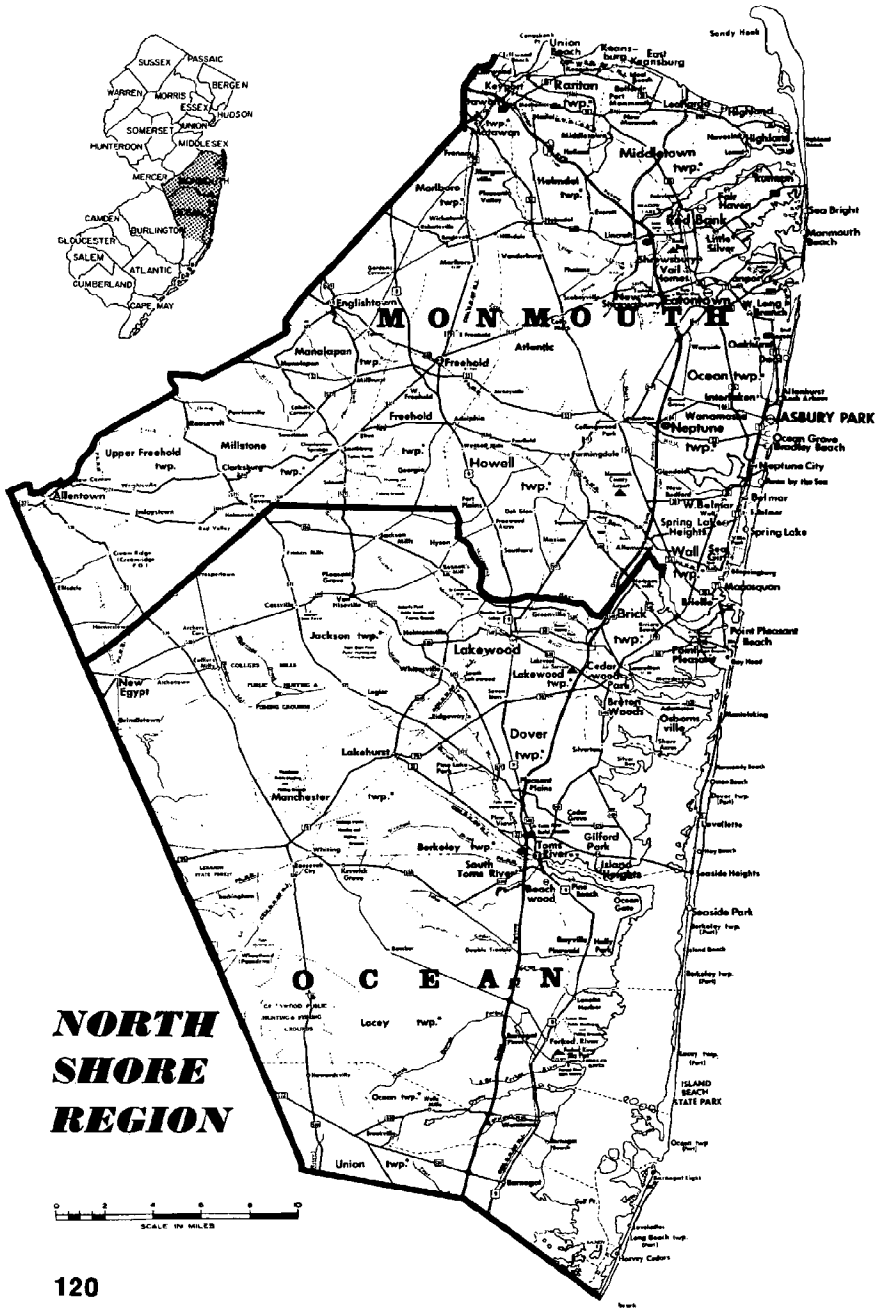
Since the Central Corridor's urban growth is rapidly consuming extensive tracts of land, it is highly unlikely that a significant portion of the present and future demand for hunting will be satisfied within the region. To meet the region's present unmet hunting demand of 3,593 people, 17,965 additional acres of land are required. By the year 2000, even after transferring the hunting needs of 3,775 people, the region's various levels of



government will still have to acquire 8,090 additional acres of hunting lands to satisfy the demands of 1,618 people.

Although the present and future demand for natural ice skating opportunities in the Central Corridor Region can be accommodated by the existing supply of natural ice skating areas, there is a critical need in the region for artificial ice skating areas to provide ice skating continuously during the winter season. The region's present unmet demand for artificial ice skating areas of 5,700 people will grow to 14,700 people by the year 2000. Most of the 10.2 acres of artificial ice skating areas required to meet the 2000 demand should be provided by the counties since they have greater financial resources than the municipalities.

Since the Central Corridor's future needs for snow skiing facilities are expected to be slight, 1,275 people by the year 2000, the county level should be able to satisfy the region's needs by developing limited facilities on slopes within existing park systems and newly acquired county recreation areas.



NORTH SHORE REGION

The North Shore Region's long and well developed shoreline is extremely popular with tourists seeking water-oriented recreation opportunities during the summer months. Still predominantly rural in character except along the coastline, the North Shore Region is beginning to experience rapid suburban growth resulting from the outward expansion of the New York metropolitan area. By the turn of the century, the residential population of the North Shore Region is expected to reach over one million people. The development of recreation facilities in this region must be planned in light of its growing residential needs and proven tourist popularity. Advanced planning is urgently needed in order to guide future development into a pattern compatible with the region's long term investment in recreation. Through planning, which recognizes environmentally critical areas, water pollution problems can be prevented and even corrected and a balance between developed lands and open space lands that serve as natural habitats for the region's fish and wildlife resources can be achieved.

Swimming, fishing and boating comprise the North Shore's major recreation attractions. (Refer to Table 11.) The region's existing supplies of swimming and fishing appear adequate to accommodate its present and future demands for these activities. Even though the North Shore's present boating demands are being met be existing facilities, significant unmet boating demands of 9,336 people and 29,680 people are projected for the years 1985 and 2000, respectively. The private sector, already the region's major supplier of boating accommodations, can be expected to develop a substantial number of boating berths in the future that will satisfy much of the North Shore's needs. In order to meet the region's total future boating needs, all levels of government must develop more boating facilities, primarily in the form of access points for car-top boats and launching ramps for trailer drawn boats to complement the private sector's supply of facilities.

There is an acute shortage of picnicking facilities in the North Shore Region resulting in an unmet demand of 39,885 people on an average weekend day during the peak season. This need will soar to 88,206 people by the year 2000. In terms

TABLE 11: NORTH SHORE REGION — PRESENT AND FUTURE DEVELOPED RECREATIONAL FACILITY NEEDS

	1970					1985				2000			
	Demand	Supply		Surplus or Deficit		Demand	Surplus or Deficit		Jurisdictional	Demand	Surplus or Deficit		Jurisdictional
	people	facilities[1]	people[2]	facilities[3]	people[4]	people[5]	facilities[6]	people[7]	Responsibility[8]	people	facilities[9]	people[10]	Responsibility
Swimming	145,500		342,479		(196,979)	206,800		(125,110)		298,100		(20,094)	
						+10,569				+24,285			
Permanent Pools		72				217,369				322,385			
Feet of Shoreline		142,777											
Acres of Beach		39											
Boating	29,800		44,350		(14,550)	42,400		9,336	State – 2,801 (2,801)	62,600		29,680	Municipal – 4,562
						+11,286			Private – 6,535 (6,535)	+20,766			County – 1,825
Areas		15				53,686	311			83,366	989		State – 7,079 (2844)
Ramps		33					78				247		Private – 16,214 (6636)
Berths		12,498					3,112				9,893		
Water Acreage		2,446					9,336				29,680		
Fishing	42,100		91,279		(49,179)	50,700		(39,895)		67,000		(18,258)	
						+ 684				+6,021			
No. of Facilities		86				51,384				73,021			
Water Acres		2,613											
Miles of Shoreline		181											
Camping	13,600		1,584		12,016	22,100		20,516	County – 10,258	35,500		13,400	County – 6,700
									State – 2,052				State – 1,340
Family Sites		396		3,004			5,129		Private – 8,206		3,350		Private – 5,360
Hiking	5,500		5,082		418	9,400		4,318	Municipal – 864	14,500		5,100	Municipal – 1,020
									County – 1,943				County – 2,295
Miles		317.6		26			270		State – 1,511		319		State – 1,785
Bicycling	20,300		108		20,192	26,700		26,592	Municipal – 15,955	35,400		8,700	Municipal – 5,220
									County – 7,978				County – 2,610
Miles		6		1,122			1,477		State – 2,659		483		State – 870
Horseback Riding	3,400		1,278		2,122	4,300		3,028	Municipal – 303	5,700		1,400	Municipal – 140
									County – 1,514				County – 700
Miles		106.5		177			252		State – 303		117		State – 140
									Private – 908				Private – 420

[1] Includes Municipal, County, State, Interstate, Federal and Private facilities.
[2] Total estimated capacity of 1970 facility supply.
[3] Indicates total number of facilities necessary to satiate unmet 1970 demand for each type of facility.
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TABLE 11: NORTH SHORE REGION (continued)

	1970					1985				2000			
	Demand people	Supply facilities[1]	Supply people[2]	Surplus or Deficit facilities[3]	Surplus or Deficit people[4]	Demand people[5]	Surplus or Deficit facilities[6]	Surplus or Deficit people[7]	Jurisdictional Responsibility[8]	Demand people	Surplus or Deficit facilities[9]	Surplus or Deficit people[10]	Jurisdictional Responsibility
Nature Interpretive Facilities (includes trails, displays and centers)	20,700	These facilities should be developed where ecologically significant conditions exist.				25,700				34,000			
Hunting	10,400		8,707		1,693	10,800		3,684	State – 2,998 (1114)	12,800		2,139	State – 1,897 (97)
						+1,591			Private – 686 (477)	+1,730			Private – 242 (42)
Acres		43,537		8,465		12,391	18,420			14,530	10,695		
Picnicking	50,100		10,215		39,885	64,600		60,518	Municipal – 10,877	88,400		27,688	Municipal – 4,760
						+6,133			County – 21,754	+10,021			County – 9,520
Acres		100		997		70,733	1,513		State – 23,287 (4293)	98,421	692		State – 10,492 (2722)
									Private – 4,600 (1840)				Private – 2,916 (1166)
Tables		1,243		7,977			12,104				5,538		
Ice Skating – Natural	85,800		110,134		(24,334)	131,600		21,466	Municipal – 10,733	190,700		59,100	Municipal – 29,550
									County – 8,586				County – 23,640
No. of Sites		16					32		State – 2,147		89		State – 5,910
Acres		137					30				81		
Ice Skating – Artificial	6,900				6,900	10,500		10,500	Municipal – 2,100	15,200		4,700	Municipal – 940
									County – 7,350				County – 3,290
Acres				4.8			7.2		Private – 1,050		3.2		Private – 470
Snow Skiing	5,700		550		5,150	8,700		815	County – 815	13,800		510	County – 150
						-7,335			----------	-11,925			----------
Acres		18		172		1,365	27		Other Regions – 7,335	1,875	17		Other Regions – 4,590
									NW – 5,868; NC – 1,467				NW – 3,672; NC – 918
Outdoor Games & Sports	59,000		16,025		42,975	84,600		68,575	Municipal – 48,003	121,500		36,900	Municipal – 25,830
									County – 10,286				County – 5,535
Playgrounds		124		860			1,372		State – 3,429		738		State – 1,845
									Private – 6,857				Private – 3,690
Open Playfields		279		2,149			3,429				1,845		
Game Courts		279		4,298			6,858				3,690		
Golf – 18 holes		17		573			914				492		
Golf – 9 holes		3		1,074			1,714				923		
Golf – Par 3		3		2,149			3,429				1,845		

[1]Includes Municipal, County, State, Interstate, Federal and Private facilities.
[2]Total estimated capacity of 1970 facility supply.
[3]Indicates total number of facilities necessary to satiate unmet 1970 demand for each type of facility.
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[10]Represents deficit or (surplus) of supply of facilities in terms of capacity to meet 2000 adjusted demand assuming the 1985 supply deficit has been met.

of facilities, 7,977 picnic tables are required to meet the present picnicking demand and 9,665 more tables will be required to satisfy picnicking demand in the year 2000. Since picnicking opportunities are commonly sought in accompaniment to other activities, there is a critical need for supplementary picnic tables at state recreation areas and at other swimming or fishing areas open to the general public. In addition, wayside picnic areas along major routes are needed. The provision of these areas should be primarily a state responsibility. In the interior of the North Shore Region, municipalities and counties should provide picnic facilities to accommodate the local demand.

There are marked deficiencies in developed recreation facilities for bicycling and playing outdoor games and sports in the North Shore Region. The present unmet demand for bicycling opportunities of 20,192 people will grow to 35,292 by the year 2000 while the regional need for outdoor games and sports facilities, presently 42,975 people, will soar to 105,475 people by the turn of the century. Since tourists visiting the shore resort areas generate much of the region's demand for these activities, a major portion of the facilities should be developed within the coastal zone by the municipalities. But the growing population of the interior of the North Shore Region will require municipal and county levels to provide bicycle trails and outdoor games and sports facilities to satisfy local needs.

The region's present camping demand, the major portion of which is generated by tourists seeking reasonable overnight accommodations within easy commuting distance of the coastline, far outstrips the capacity of existing facilities. The North Shore's present unmet camping demand of 12,016 people will climb to 33,916 people by the year 2000. Although private capital can be expected to develop a substantial portion of the 8,479 campsites required by the year 2000, the counties and State must develop additional facilities to serve the needs of those desiring backwoods camping experiences.

The North Shore Region lacks sufficient facilities to accommodate present and future demands for backwoods types of activities including hiking, horseback riding, and hunting. To satisfy the anticipated demands for these activities at the turn of the century, 589 miles of hiking trails must be developed, 369 miles of bridle trails must be constructed, and 29,115 acres of land must be opened for hunting. State and county levels should develop the majority of these facilities since they administer the extensive tracts of land these facilities since they administer the extensive tracts of land these activities require. Responding to the profitable market for horseback riding opportunities, the commercial sector is expected to develop a substantial portion of the bridle trail mileage.

Though the North Shore's present demand for natural ice skating opportunities is being met by existing facilities, there will be a significant unmet natural ice skating demand of 80,566 people by the turn of the century. The responsibility for providing the 111 acres of natural ice areas needed by the year 2000 near the region's population centers rests primarily with the local levels of government. In addition to the need for natural ice skating areas, there is also a need for the development of artificial ice skating areas to provide ice skating opportunities continuously throughout the winter season. The 10.4 acres of artificial ice skating areas required to meet the expected 1985 and 2000 demand should be developed almost entirely by the counties and municipalities.

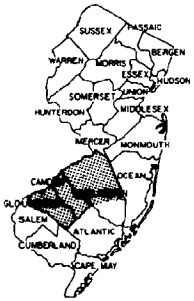
For the most part, the North Shore's present and future needs for snow skiing facilities will be satisfied in other regions possessing the physiographic conditions suitable for such developments.

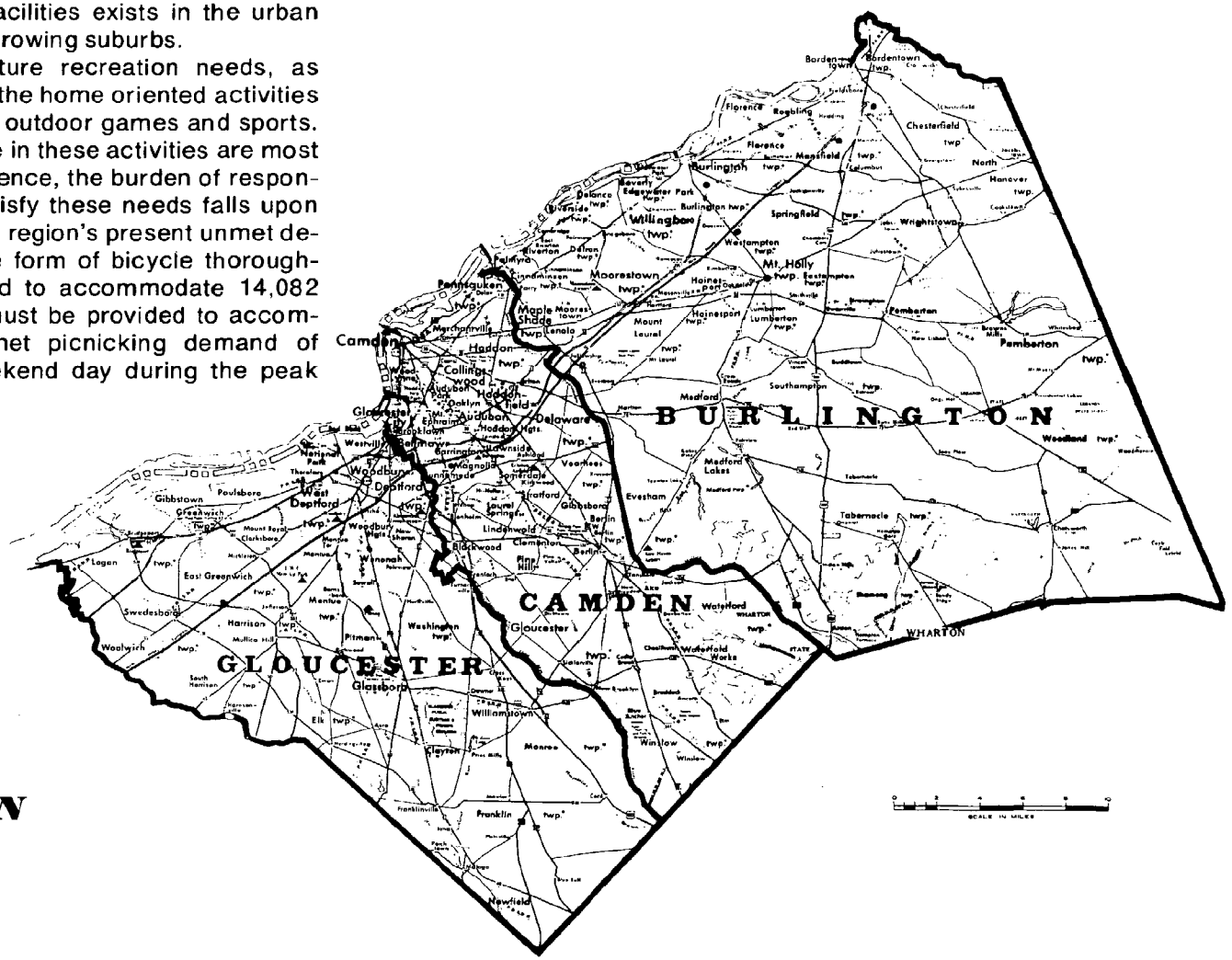
SOUTHWEST REGION

The Southwest Region's pattern of development is marked by extremes—intense urbanization in the western section along the Delaware River and sparse settlement of pine lands in the eastern section. Outward growth from the region's urban centers is resulting in rapid suburbanization of the zone bordering the Southwest's densely populated strip. In planning for recreation facility development in the Southwest Region, consideration must be given to the area's emerging development pattern. The need for recreation facilities exists in the urban areas and to a lesser degree in the growing suburbs.

The region's present and future recreation needs, as shown in Table 12, are greatest for the home oriented activities of bicycling, picnicking and playing outdoor games and sports. Because opportunities to participate in these activities are most sought close to one's place of residence, the burden of responsibility for providing facilities to satisfy these needs falls upon the local jurisdictions. To satisfy the region's present unmet demand for bicycling, facilities in the form of bicycle thoroughfares and trails must be developed to accommodate 14,082 people. Over 2,400 picnic tables must be provided to accommodate the region's present unmet picnicking demand of 12,035 people on an average weekend day during the peak season. Public development of game courts, sports fields, playgrounds and golf facilities and private development of golf courses are needed to meet the region's present unmet demand of 11,925 people for outdoor sports opportunities.

At present, the Southwest Region is faced with a slight unmet boating demand of 2,686 people that will grow considerably by the year 2000 to over 20,000 people. The State should satisfy part of the region's boating needs by providing access to the Delaware River for car-top and trailer-drawn boats and to the numerous streams traversing state land in the region's





SOUTHWEST REGION

TABLE 12: SOUTHWEST REGION – PRESENT AND FUTURE DEVELOPED RECREATIONAL FACILITY NEEDS

	1970					1985				2000			
	Demand people	Supply facilities[1]	Supply people[2]	Surplus or Deficit facilities[3]	Surplus or Deficit people[4]	Demand people[5]	Surplus or Deficit facilities[6]	Surplus or Deficit people[7]	Jurisdictional Responsibility[8]	Demand people	Surplus or Deficit facilities[9]	Surplus or Deficit people[10]	Jurisdictional Responsibility
Swimming	53,300		109,725		(56,425)	85,000		(24,396)		134,800		25,526	Municipal – 12,538
						+ 329				+ 451			County – 3,761
Permanent Pools		69				85,329				135,251	46		State – 4,167 (110)
Feet of Shoreline		35,280									12,763		Private – 5,060 (12)
Acres of Beach		2									59		
Boating	11,000		8,314		2,686	18,200		9,886	Municipal – 989	28,600		10,400	Municipal – 1,040
									County – 1,977				County – 2,080
Areas		16		90			330		State – 3,460		347		State – 3,640
Ramps		1		22			82		Private – 3,460		87		Private – 3,640
Berths		2,555		895			3,295				3,467		
Water Acreage		49		2,686			9,886				10,400		
Fishing	9,300		42,023		(32,723)	12,700		(29,323)		18,100		(23,923)	
No. of Facilities		40											
Water Acres		37											
Miles of Shoreline		1,495											
Camping	1,700		1,968		(268)	2,800		832	County – 333	4,500		1,700	County – 680
									State – 291				State – 595
Family Sites		492					208		Private – 208		425		Private – 425
Hiking	3,100		9,803		(6,703)	5,900		(3,903)		10,200		397	Municipal – 40
													County – 258
Miles		612.7									25		State – 99
Bicycling	14,100		18		14,082	20,300		20,282	Municipal – 12,170	29,000		8,718	Municipal – 5,230
									County – 4,056				County – 1,744
Miles		1		782			1,127		State – 4,056		484		State – 1,744
Horseback Riding	2,700		2,316		384	3,900		1,584	Municipal – 79	5,200		1,300	Municipal – 65
									County – 950				County – 780
Miles		193		32			132		State – 238		108		State – 195
									Private – 317				Private – 260

[1]Includes Municipal, County, State, Interstate, Federal and Private facilities.
[2]Total estimated capacity of 1970 facility supply.
[3]Indicates total number of facilities necessary to satiate unmet 1970 demand for each type of facility.
[4]Represents deficit or (surplus) of 1970 supply of facilities in terms of capacity to meet 1970 demand.
[5]Represents regional demand and where necessary addition of demand from other regions or subtraction of regional demand distributed to other regions to determine an adjusted regional demand.
[6]Indicates total number of facilities necessary to satiate unmet 1985 adjusted demand for each type of facility.
[7]Represents deficit or (surplus) of 1970 supply of facilities in terms of capacity to meet 1985 adjusted demand.
[8]Apportioned share of the facility capacity deficit which should be accommodated by the various jurisdictions within the region based upon their responsibilities and capabilities. That portion of a jurisdiction's responsibility which was apportioned from out region demand is shown in brackets. Below the dotted line the demand assigned to other regions is distributed to the receiving regions. (Private sector includes commercial enterprises, quasi-public organizations and private or restricted membership clubs. Reservoirs are non-state, public water supply reservoirs.)
[9]Indicates total number of facilities necessary to satiate unmet demand for each type of facility assuming the 1985 deficit has been met.
[10]Represents deficit or (surplus) of supply of facilities in terms of capacity to meet 2000 adjusted demand assuming the 1985 supply deficit has been met.

TABLE 12: SOUTHWEST REGION (continued)

	1970					1985				2000			
	Demand people	Supply facilities[1]	Supply people[2]	Surplus or Deficit facilities[3]	Surplus or Deficit people[4]	Demand people[5]	Surplus or Deficit facilities[6]	Surplus or Deficit people[7]	Jurisdictional Responsibility[8]	Demand people	Surplus or Deficit facilities[9]	Surplus or Deficit people[10]	Jurisdictional Responsibility
Nature Interpretive Facilities (includes trails, displays and centers)	8,100	These facilities should be developed where ecologically significant conditions exist.				11,500				16,400			
Hunting	3,600		13,168		(9,568)	4,600 + 821 = 5,421		(7,747)		5,400 + 943 = 6,343		(6,825)	
Acres		65,838											
Picnicking	21,400		9,365		12,035	31,500		22,135	Municipal – 5,534 County – 11,067 State – 5,534	46,200		14,700	Municipal – 6,615 County – 7,350 State – 735
Acres		195		301			553				368		
Tables		313		2,407			4,427				2,940		
Ice Skating – Natural	26,900		945,701		(918,801)	45,100		(900,601)		71,600		(874,101)	
No. of Sites		17											
Acres		1,287											
Ice Skating–Artificial	8,700				8,700	14,600		14,600	Municipal – 2,920 County – 10,220 Private – 1,460	23,200		8,600	Municipal – 1,720 County – 6,020 Private – 860
Acres				6			10				5.9		
Snow Skiing	900		3,500		(2,600)	1,500 + 900 = 2,400		(1,100)		2,600 + 900 = 3,500			
Acres		117											
Outdoor Games & Sports	37,100		25,175		11,925	60,200		35,025	Municipal – 24,518 County – 5,253 State – 1,751 Private – 3,503	91,800		31,600	Municipal – 22,120 County – 4,740 State – 1,580 Private – 3,160
Playgrounds		190		239			701				632		
Open Playfields		455		596			1,751				1,580		
Game Courts		480		1,193			3,503				3,160		
Golf – 18 holes		17		159			467				421		
Golf – 9 holes		6		298			876				790		
Golf – Par 3		13		596			1,751				1,580		

[1]Includes Municipal, County, State, Interstate, Federal and Private facilities.
[2]Total estimated capacity of 1970 facility supply.
[3]Indicates total number of facilities necessary to satiate unmet 1970 demand for each type of facility.
[4]Represents deficit or (surplus) of 1970 supply of facilities in terms of capacity to meet 1970 demand.
[5]Represents regional demand and where necessary addition of demand from other regions or subtraction of regional demand distributed to other regions to determine an adjusted regional demand.
[6]Indicates total number of facilities necessary to satiate unmet 1985 adjusted demand for each type of facility.
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[9]Indicates total number of facilities necessary to satiate unmet demand for each type of facility assuming the 1985 deficit has been met.
[10]Represents deficit or (surplus) of supply of facilities in terms of capacity to meet 2000 adjusted demand assuming the 1985 supply deficit has been met.

Pine Barrens. The remainder of the region's boating needs are related to the local demand for facilities, particularly in urban areas along the Delaware River. The private sector can be expected to continue its role as the region's major supplier of boating accommodations but municipalities and counties should develop facilities for general public use to take full advantage of the region's boating potential.

The Southwest's existing supply of swimming facilities appears sufficient to accommodate the region's present demand. But by the year 2000, the region's existing swimming facilities will be unable to accommodate 25,526 people who desire swimming opportunities within the region on an average weekend day during the peak season. Much of the region's future swimming needs will occur in urban centers and therefore the majority of the Southwest's future swimming facilities, primarily in the form of pools, should be developed by local jurisdictions to complement the high proportion of privately provided pools.

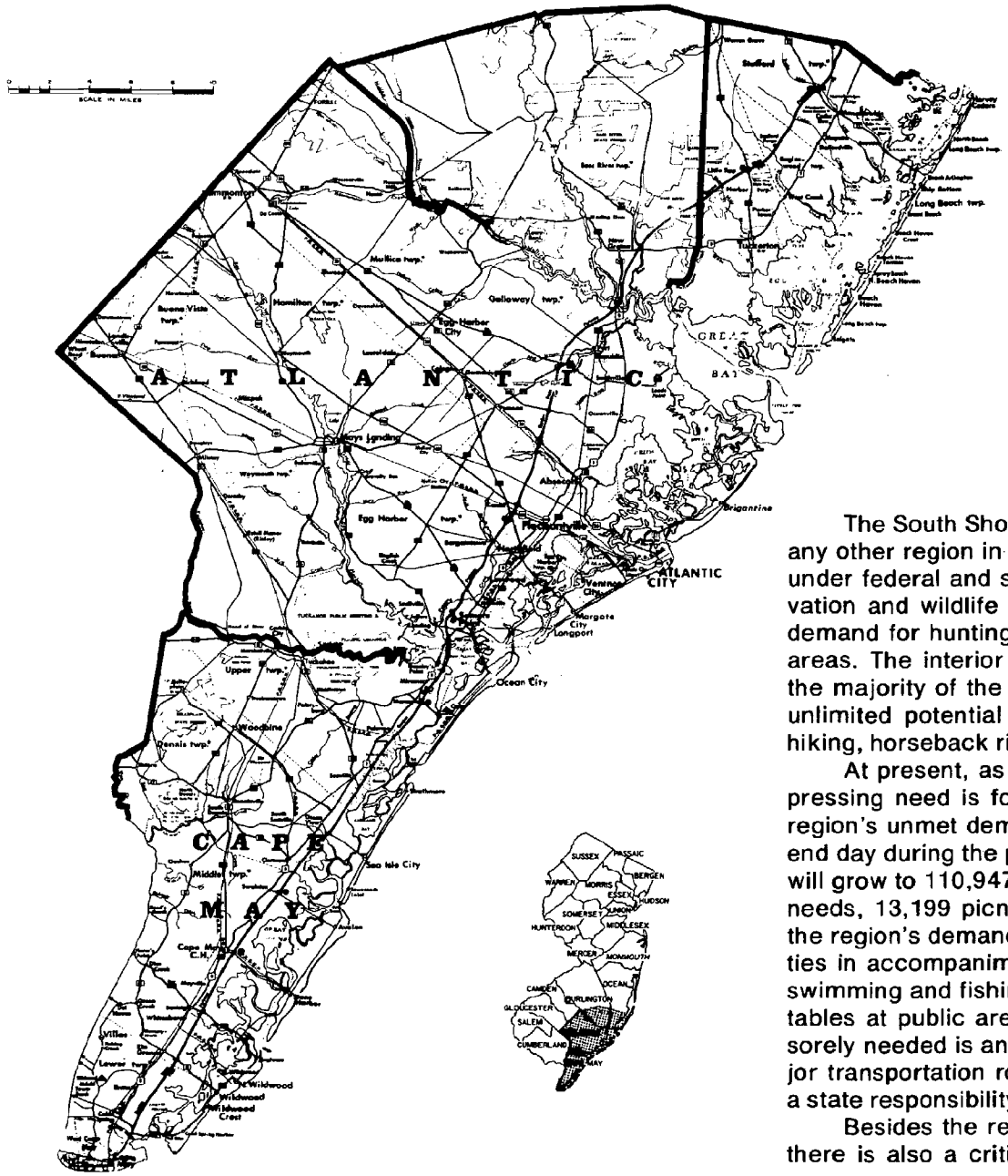
The Southwest Region, like the other planning regions, shows a need for artificial ice skating facilities. To meet the region's present unmet demand of 8,700 people, 6 acres of artificial ice skating facilities must be developed. By the turn of the century, 10 more acres of artificial ice skating surface will be required to meet the expected increase in ice skating demand. Local levels of government should develop the majority of the region's future artificial ice skating areas since ice skating opportunities are most often sought close to home.

Extensive tracts of state owned pine lands in the Southwest Region provide sufficient opportunities to satisfy the region's present and future hunting demands and offer development potential to satisfy much of the region's future hiking, horseback riding, and camping needs. To meet local demands for hiking and horseback riding, local jurisdictions, especially the counties, should develop suitable facilities. Counties and the private sector are expected to supplement state provided camping facilities in the region.

SOUTH SHORE REGION

The South Shore's advantageous combination of abundant natural recreation resources and accessibility to population centers in New Jersey and neighboring states has made it one of the most popular tourist areas in the State. As a result of the sizable away demand generated by tourists for the South Shore's renowned recreation opportunities, there is a need for developed recreation facilities for most activities.

Proper planning is needed to guide the increasing development accompanying the South Shore's growing summer and year-round population into a pattern compatible with the region's natural features. The threat posed by residential development is most critical along the region's coastline where the wetlands, which serve as feeding and breeding grounds for a wide array of fish and wildlife, face reduction and degradation resulting from expansion of resort communities. To counter impending disruption of this valuable natural asset, the State Legislature passed the "Wetlands Act of 1970" giving the Department of Environmental Protection power to regulate future development of lands defined as "wetland."



SOUTH SHORE REGION

The South Shore contains more public recreation land than any other region in the State. Most of the public recreation land under federal and state jurisdiction is administered for conservation and wildlife management purposes, and, therefore, the demand for hunting is fully satisfied by the availability of these areas. The interior public pinelands holdings, which comprise the majority of the region's public recreation land, offer nearly unlimited potential for backwoods oriented activities such as hiking, horseback riding, and camping.

At present, as shown in Table 13, the South Shore's most pressing need is for picnicking facilities to accommodate the region's unmet demand of 65,995 people on an average weekend day during the peak season. This unmet picnicking demand will grow to 110,947 people by the year 2000. To satisfy present needs, 13,199 picnic tables must be provided. Since much of the region's demand is generated by tourists seeking opportunities in accompaniment with other recreation activities such as swimming and fishing, there is a need for supplementary picnic tables at public areas especially ocean bathing beaches. Also sorely needed is an increase in wayside picnic areas along major transportation routes. This type of development is primarily a state responsibility.

Besides the region's severe need for picnicking facilities, there is also a critical shortage of outdoor games and sports

TABLE 13: SOUTH SHORE REGION — PRESENT AND FUTURE DEVELOPED RECREATIONAL FACILITY NEEDS

	1970					1985				2000			
	Demand people	Supply facilities[1]	Supply people[2]	Surplus or Deficit facilities[3]	Surplus or Deficit people[4]	Demand people[5]	Surplus or Deficit facilities[6]	Surplus or Deficit people[7]	Jurisdictional Responsibility[8]	Demand people	Surplus or Deficit facilities[9]	Surplus or Deficit people[10]	Jurisdictional Responsibility
Swimming	225,100		598,890		(373,790)	305,900		(290,348)		422,200		(170,619)	
						+2,642				+6,071			
						308,542				428,271			
Permanent Pools		11											
Feet of Shoreline		295,740											
Acres of Beach		3											
Boating	46,000		39,997		6,003	61,700		30,168	Municipal — 5,425	88,300		33,710	Municipal — 6,650
						+8,465			County — 2,170	+15,575			County — 2,660
						70,165			State — 7,728 (3386)	103,875			State — 8,164 (2844)
Areas		10		200			1,006		Private — 14,845 (5079)		1,124		Private — 16,236 (4266)
Ramps		36		50			251				281		
Berths		10,059		2,001			10,056				11,237		
Water Acreage		5,200		6,003			30,168				33,710		
Fishing	71,700		131,389		(59,689)	84,200		(47,189)		109,300		(22,089)	
No. of Facilities		51											
Water Acres		5,636											
Miles of Shoreline		168											
Camping	24,600		22,044		2,556	39,900		17,850	County — 1,786	64,000		24,100	County — 2,410
									State — 3,571				State — 4,820
Family Sites		5,511		639			4,464		Private — 12,499		6,025		Private — 16,870
Hiking	7,300		4,414		2,886	11,500		7,086	Municipal — 1,417	16,200		4,700	Municipal — 940
									County — 2,480				County — 1,645
Miles		276		180			443		State — 3,189		294		State — 2,115
Bicycling	24,300		504		23,796	28,900		28,396	Municipal — 17,037	34,600		5,700	Municipal — 3,420
									County — 8,519				County — 1,710
Miles		28		1,322			1,578		State — 2,840		317		State — 570
Horseback Riding	3,000		2,586		414	4,000		1,414	Municipal — 71	4,800		800	Municipal — 40
									County — 212				County — 120
Miles		2,155		35			118		State — 283		67		State — 160
									Private — 848				Private — 480

[1] Includes Municipal, County, State, Interstate, Federal and Private facilities.
[2] Total estimated capacity of 1970 facility supply.
[3] Indicates total number of facilities necessary to satiate unmet 1970 demand for each type of facility.
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TABLE 13: SOUTH SHORE REGION (continued)

	1970					1985				2000			
	Demand people	Supply facilities[1]	Supply people[2]	Surplus or Deficit facilities[3]	Surplus or Deficit people[4]	Demand people[5]	Surplus or Deficit facilities[6]	Surplus or Deficit people[7]	Jurisdictional Responsibility[8]	Demand people	Surplus or Deficit facilities[9]	Surplus or Deficit people[10]	Jurisdictional Responsibility
Nature Interpretive Facilities (includes trails, displays and centers)	31,500	These facilities should be developed where ecologically significant conditions exist.				36,900				46,900			
Hunting	16,300		24,281		(7,981)	15,900		(6,626)		18,700		(3,662)	
Acres		121,404				+1,755 17,655				+1,919 20,619			
Picnicking	74,300		8,305		65,995	89,900		82,361	Municipal – 16,319	118,000		28,586	Municipal – 5,620
						+ 766 90,666			County – 28,588	+ 1,252 119,252			County – 9,835
Acres		112		1,650			2,059		State – 37,454 (766)		715		State – 13,131 (486)
Tables		765		13,199			16,472				5,717		
Ice Skating – Natural	41,200		102,679		(61,479)	56,400		(46,279)		71,500		(31,179)	
No. of Sites		7											
Acres		135											
Ice Skating-Artificial	13,300				13,300	18,300		18,300	Municipal – 3,660	23,200		4,900	Municipal – 980
									County – 12,810				County – 3,430
Acres				9.2			12.6		Private – 1,830		3.4		Private – 490
Snow Skiing	10,000				10,000	15,000			Other Regions –15,000	24,000			Other Regions – 9,000
						–15,000 0			NW-12,342; NC-2,178;	–24,000 0			NW-8,058; NC-942
Acres				333					SW - 480				
Outdoor Games & Sports	74,800		10,580		64,220	96,500		85,920	Municipal – 60,144	128,600		32,100	Municipal – 22,470
									County – 12,888				County – 4,815
Playgrounds		91		1,284			1,718		State – 4,296		642		State – 1,605
									Private – 8,592				Private – 3,210
Open Playfields		148		3,211			4,296				1,605		
Game Courts		215		6,422			8,592				3,210		
Golf – 18 holes		8		856			1,146				428		
Golf – 9 holes		5		1,606			2,148				803		
Golf – Par 3		6		3,211			4,296				1,605		

[1] Includes Municipal, County, State, Interstate, Federal and Private facilities.
[2] Total estimated capacity of 1970 facility supply.
[3] Indicates total number of facilities necessary to satiate unmet 1970 demand for each type of facility.
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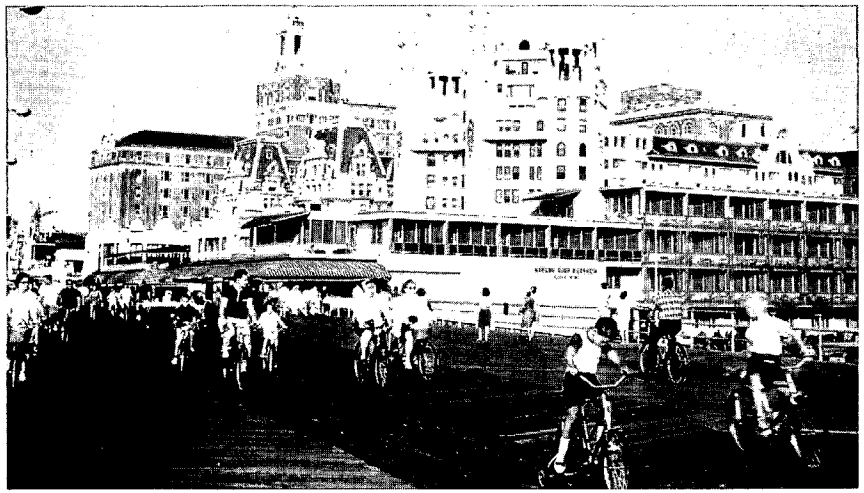
facilities — present unmet demands for these activities amount to 64,220 people. This need will become even more acute in the future as the region's existing facilities will be unable to accommodate 118,020 people who will seek outdoor games and sports opportunities on an average weekend day during the peak season in the year 2000. The municipal level should develop the majority of the region's outdoor games and sports facilities to accommodate local demand generated by a large summer residential population and day use visitors. Private capital can be expected to develop new golf courses if land prices and property taxes remain relatively low.



Atlantic City

Despite the numerous bays and inlets and the vast expanse of ocean, boating facilities in this region are insufficient to accommodate the boating demand. All levels of government and the private sector must develop additional boating facilities or be faced with an unmet demand of 63,878 people by the turn of the century.

Although over half of New Jersey's campsites are located in the South Shore Region, there is a present regional unmet camping demand of 2,556 people. To meet the rapidly increasing demand for camping opportunities, 10,489 campsites must be developed to accommodate 41,956 people by the year 2000. The private sector, already the region's primary supplier of camping facilities, is expected to develop the majority of the South Shore's future campsites to accommodate tourists seeking reasonable lodging within convenient travel distance of resort areas. The State, and to a lesser degree the counties, should assume responsibility for providing camping facilities to meet camping demands generated by sportsmen attracted to the region by hunting and fishing opportunities and those persons who desire backwoods camping experiences.

A critical need exists in the South Shore Region for developed bicycling facilities because present bicycling demand exceeds supply by 23,796 people and, by the year 2000, bicycling needs will reach 34,096 people. To meet the region's present needs over 1,300 miles of bicycle trails and thoroughfares must be provided by all levels of government. To serve the region's large summer population, municipalities, especially the resort communities, should provide bicycle thoroughfares which allow for safe passage of bicycle traffic. Consideration should be given by the state and county levels to providing bicycle trails along sufficiently wide highway rights-of-way.

A substantial portion of the South Shore's present and future needs for hiking and horseback riding can be satisfied by utilizing the vast potential of state recreation lands for providing these facilities. The private sector is likely to develop the majority of the South Shore's future equestrian trails in response to a growing demand and a profitable market. At the local levels, hiking and horseback riding trails should be developed to supplement state provided facilities to satisfy these demands.

The South Shore Region has an abundant supply of natural ice skating areas, but, like the other regions, there is a need for artificial areas to provide ice skating opportunities continously throughout the winter season. At present, 9.2 acres of artificial ice skating surface must be developed to satisfy the region's unmet demand of 13,300 people. Local levels of government are primarily responsible for providing facilities for this home oriented activity. Because the South Shore Region lacks suitable physiographic and climatic conditions for snow skiing development, the region's snow skiing demand will have to be satisfied in other regions.

DELAWARE BAY REGION

The Delaware Bay's rural nature coupled with its present remoteness from large population centers account for the region's comparatively low level of demand for recreation opportunities. The region's nearly unlimited recreation potential, especially for water-oriented activities along its southern boundary fronting the Delaware Bay, has been barely tapped. However, recreation development of the region's abundant natural resources can be expected in the future because the facilities of the shore regions will eventually be unable to accommodate all of the recreation demand generated by New Jersey's growing population and increasing out-of-state tourism.

Coastal areas, consisting of marsh lands and wetlands, represent irreplaceable, valuable assets which serve as nesting, feeding and migrating places for waterfowl and a source of nutrient supplies for marine life. As a result, they offer abundant hunting and fishing opportunities. The State's diminishing fish and wildlife resources, threatened by water pollution and urban development of former wildlife habitats, should be protected through planning, zoning, pollution control and public land acquisition.

Present and future needs for developed recreation facilities are greatest for the activities of outdoor games and sports and picnicking. (Refer to Table 14.) At present, existing facilities are unable to accommodate the 5,180 people who desire outdoor games and sports opportunities on an average weekend day during the peak season, while existing picnicking facilities are insufficient to accommodate the demand of 5,135 people. By the turn of the century, the region's unmet demands will be 15,080 people for playing outdoor games and sports and 10,435 people for picnicking. Since these activities are primarily home oriented, the majority of the responsibility for developing suitable facilities rests with the local levels of government. The State should supplement the locally provided picnicking facilities to accommodate the tourist generated demand for picnicking.

Like the other study regions, the Delaware Bay shows a need for designated bicycle trails. The region's present unmet

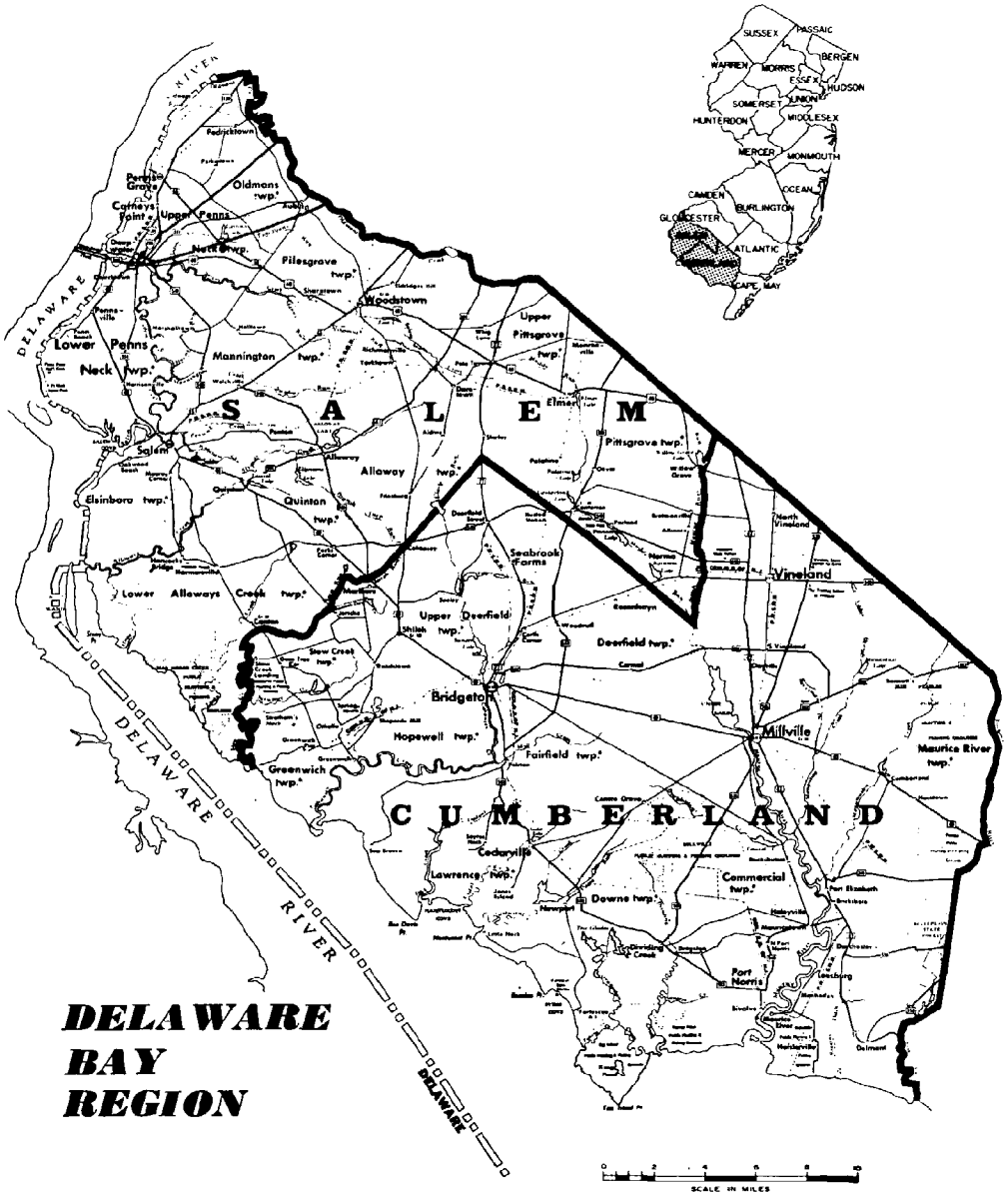


TABLE 14: DELAWARE BAY REGION – PRESENT AND FUTURE DEVELOPED RECREATIONAL FACILITY NEEDS

	1970					1985				2000			
	Demand people	Supply facilities[1]	Supply people[2]	Surplus or Deficit facilities[3]	Surplus or Deficit people[4]	Demand people[5]	Surplus or Deficit facilities[6]	Surplus or Deficit people[7]	Jurisdictional Responsibility[8]	Demand people	Surplus or Deficit facilities[9]	Surplus or Deficit people[10]	Jurisdictional Responsibility
Swimming	19,000		60,557		(41,557)	27,100		(3,345)		39,200		(21,357)	
Permanent Pools		27											
Feet of Shoreline		21,916											
Acres of Beach		4											
Boating	3,900		6,373		(2,473)	5,700		(673)		8,200		2,500	Municipal – 250 County – 250
Areas		3									83		State – 750 Private – 1,250
Ramps		11									21		
Benches		1,315											
Water Acreage		1,018											
Fishing	4,600		28,219		(23,619)	5,700		(22,519)		7,600		(20,619)	
No. of Facilities		18											
Water Acres		1,251											
Miles of Shoreline		32.4											
Camping	1,300		1,788		(488)	2,200		412	County – 82 State – 124	3,500		1,300	County – 260 State – 390
Family Sites		447					103		*Private – 206*		325		*Private – 650*
Hiking	900		544		356	1,500		956	Municipal – 191 County – 191	2,300		800	Municipal – 160 County – 160
Miles		34		22			60		State – 574		50		State – 480
Bicycling	3,500		18		3,482	4,600		4,582	Municipal – 2,750 County – 916	5,900		1,300	Municipal – 780 County – 260
Miles		1		193			255		State – 916		72		State – 260
Horseback Riding	700		180		520	800		620	Municipal – 62 County – 62	1,000		200	Municipal – 20 County – 20
Miles		15		43			52		State – 248 *Private – 248*		17		State – 80 Private – 80

[1]Includes Municipal, County, State, Interstate, Federal and Private facilities.
[2]Total estimated capacity of 1970 facility supply.
[3]Indicates total number of facilities necessary to satiate unmet 1970 demand for each type of facility.
[4]Represents deficit or (surplus) of 1970 supply of facilities in terms of capacity to meet 1970 demand.
[5]Represents regional demand and where necessary addition of demand from other regions or subtraction of regional demand distributed to other regions to determine an adjusted regional demand.
[6]Indicates total number of facilities necessary to satiate unmet 1985 adjusted demand for each type of facility.
[7]Represents deficit or (surplus) of 1970 supply of facilities in terms of capacity to meet 1985 adjusted demand.
[8]Apportioned share of the facility capacity deficit which should be accommodated by the various jurisdictions within the region based upon their responsibilities and capabilities. That portion of a jurisdiction's responsibility which was apportioned from out region demand is shown in brackets. Below the dotted line the demand assigned to other regions is distributed to the receiving regions. (Private sector includes commercial enterprises, quasi-public organizations and private or restricted membership clubs. Reservoirs are non-state, public water supply reservoirs.)
[9]Indicates total number of facilities necessary to satiate unmet demand for each type of facility assuming the 1985 deficit has been met.
[10]Represents deficit or (surplus) of supply of facilities in terms of capacity to meet 2000 adjusted demand assuming the 1985 supply deficit has been met.

TABLE 14: DELAWARE BAY REGION (continued)

	1970					1985				2000			
	Demand	Supply		Surplus or Deficit		Demand	Surplus or Deficit		Jurisdictional	Demand	Surplus or Deficit		Jurisdictional
	people	facilities[1]	people[2]	facilities[3]	people[4]	people[5]	facilities[6]	people[7]	Responsibility[8]	people	facilities[9]	people[10]	Responsibility
Nature Interpretive Facilities (includes trails, displays and centers)	2,700	These facilities should be developed where ecologically significant conditions exist.				3,500				4,600			
Hunting	1,300		9,611		(8,311)	1,400		(8,211)		1,700		(7,911)	
Acres		48,055											
Picnicking	6,900		1,765		5,135	9,000		7,235	Municipal – 2,170 County – 2,170 State – 2,895	12,200		3,200	Municipal – 960 County – 960 State – 1,280
Acres				128			181				80		
Tables		353		1,027			1,447				640		
Ice Skating-Natural	7,600		1,150,415		(1,142,815)	11,300		(1,131,515)		16,200		(1,134,215)	
No. of Sites		5											
Acres		1,580											
Ice Skating-Artificial Acres	2,100			1.4	2,100	3,200	2.2	3,200	Municipal – 640 County – 2,240 Private – 320	4,600		1,400	Municipal – 280 County – 980 Private – 140
Snow Skiing	600				600	900 –900 0			Other Regions – 900 NW-432; NC-48; SW-420	1,400 –1,400 0			Other Regions – 500 NW-478; NC-22
Acres				20									
Outdoor Games & Sports	9,800		4,620		5,180	14,100		9,480	Municipal – 6,636 County – 1,422 State – 474 Private – 948	19,700		5,600	Municipal – 3,920 County – 840 State – 280 Private – 560
Playgrounds		38		104			190				112		
Open Playfields		85		259			474				280		
Game Courts		77		518			948				560		
Golf – 18 holes		2		69			126				75		
Golf – 9 holes		2		130			237				140		
Golf – Par 3		1		259			474				280		

[1]Includes Municipal, County, State, Interstate, Federal and Private facilities.
[2]Total estimated capacity of 1970 facility supply.
[3]Indicates total number of facilities necessary to satiate unmet 1970 demand for each type of facility.
[4]Represents deficit or (surplus) of 1970 supply of facilities in terms of capacity to meet 1970 demand.
[5]Represents regional demand and where necessary addition of demand from other regions or subtraction of regional demand distributed to other regions to determine an adjusted regional demand.
[6]Indicates total number of facilities necessary to satiate unmet 1985 adjusted demand for each type of facility.
[7]Represents deficit or (surplus) of 1970 supply of facilities in terms of capacity to meet 1985 adjusted demand.
[8]Apportioned share of the facility capacity deficit which should be accommodated by the various jurisdictions within the region based upon their responsibilites and capabilities. That portion of a jurisdiction's responsibility which, as apportioned from out region demand is shown in brackets. Below the dotted line the demand assigned to other regions is distributed to the receiving regions. (Private sector includes commercial enterprises, quasi-public organizations and private or restricted membership clubs.)
[9]Indicates total number of facilities necessary to satiate unmet demand for each type of facility assuming the 1985 deficit has been met.
[10]Represents deficit or (surplus) of supply of facilities in terms of capacity to meet 2000 adjusted demand assuming the 1985 supply deficit has been met.

bicycling demand of 3,482 people will reach 5,882 by the year 2000 and require development of 327 miles of designated trails. To satisfy local demand, municipalities should provide bicycle thoroughfares within their residential street systems to allow for the safe passage of bicycle traffic. At county and state levels, highway rights-of-way should be examined for potential bicycle trail development.

Existing camping facilities in the Delaware Bay Region are sufficient to handle present demand. But by the turn of the century, the region will require development of 428 additional campsites to accommodate the anticipated increase in demand for camping opportunities. Since camping often accompanies the region's major recreational attractions of fishing and hunting, a substantial portion of the new campsites should be developed close to facilities providing these activities; and since the State provides nearly all of the region's hunting opportunities and a large share of its fishing facilities, it should play a significant role in providing future camping facilities. Because camping facilities can be profitable, the private sector, which already supplies most of the region's family campsites, is expected to develop approximately half of the Delaware Bay's future camping facilities.

To satisfy present and future demands for hiking opportunities, 110 miles of hiking trails should be developed in the Delaware Bay Region by municipal, county and state levels by the year 2000. The region's horseback riding demand will require provision of 69 miles of bridle trails by the turn of the century. State and private development is expected to accommodate most of the region's horseback riding facility needs.

The numerous rivers, inlets, and coves of this region offer excellent boating opportunities. Existing boating facilities, while adequate to handle present demand, will require additional boating accommodations by the year 2000 to satisfy an anticipated unmet demand of 2,500 people. The private sector and the State, major suppliers of the region's boating accommodations, are likely to develop most of the Delaware Bay's future boating facilities. Private sector development will probably consist of boat berths, while the State is expected to provide access points and launching ramps for car-top boats and trailer-drawn boats to take advantage of the region's copious supply of water resources.

Since the Delaware Bay Region lacks the physiographic and climatic conditions necessary for snow skiing development, the region's present and future snow skiing needs will be met outside of the region. Climatic conditions also reduce the ice skating potential of the region's plentiful supply of natural water areas, and therefore, the Delaware Bay needs 1.4 acres of artificial ice skating surface to satisfy the region's present unmet ice skating demand of 2,100 people. Without future development of artificial ice skating areas, the region faces a need amounting to 4,600 people by the year 2000. Responsibility for providing artificial ice skating areas should be assumed by local levels of government because ice skating is primarily a home oriented activity.

A slight need exists in the region's few urban areas for swimming facilities in the form of permanent pools despite the Delaware Bay's apparently adequate swimming supply. The responsibility for satisfying this need falls upon local levels of government; the private sector presently provides the region's total supply of pools.

URBAN NEEDS STUDY VI

The essence of recreation is choice. This choice in an urban environment is limited since urban recreation has always been one of the unwanted children of city budgets. It is treated haphazardly as far as allocations, and then turned over to archaic administration facilities.

Urban recreation is what people who live in a city decide to do when given the opportunity to decide what to do; it is the manifestation of natural drives in an essentially man-made environment. The character of urban recreation that is evolving must be catered to, not altered to match the green dreams of Westchester and the Wild West. Recreation planning for cities demands the unconventional. Planning for urban recreation must concentrate primarily on man-the-participant since Man-in-Nature, man-the-occupant, is an anachronism; both the sites and programs must be as tailored as they are surprising. Buildings and cars must be acknowledged as the landscape of the city which, unlike distant greenlands, hold no priority over man's current drives as an irretrievable asset for the future. The basic question is how to provide greater choice in terms of urban recreation. The pressing question is "What kinds of choices are more important?"

In urban recreation the term "leisure activity" is insufficient; urban recreation must serve social and educational ends with the city providing the means which the people cannot give themselves. Physically the only open space is the city's. And yet, since the city is people, this open space must serve the people. Parks, lots, and curbs must function as backyards and lawns. Financially, the city must offer the facilities that the individual cannot afford. Mobility-wise, the city must help carless people see and be in new places. The city must now care about the residents, having overlooked them for years of industrial and commercial concern. Most recreational departments will not be supplementing, but merely beginning to provide.

For the most part, inner city statistics show that a lot of people with not a lot of money have a lot of children and not a lot of nice places to go. The people who now live in the city are, for the very large majority, the people who cannot move out of the city. Those people who do not reside in the city can and do return there for recreation: theatre, shopping, restaurants, museums. Yet, the recreational values of the urbanite and exurbanite can and do differ.

Opportunity, hence choice, is a matter of the quantity and convenience of facilities provided, as well as a personal budget of energy, time, and money. The constraints on all five are tightest for the inner city resident. The result in spare time for adults is staying, not going, sitting, not doing. Money, time, energy, convenience, quantity—the local bar is a number one recreation spot for the city's son, and the closer, cheaper, drier equivalent is the front steps, which is just as popular. For the youths the same five are important, but in a different fashion. Instead of running out of time and energy, they have more than the city can absorb. Thus, they use their time on fire escape swings, bus fender rides, and exploration in demolition sites. The only open area for anyone is the street and so it becomes a place instead of a space, a multiple purpose and very popular place.

What else do little kids and teenagers, adults and old people who live in the city do when they can decide what to do that is a result of what a city innately offers, despite any municipal agency? Walking on sidewalks, on bridges, on rooftops, hanging out, ganging up, going to sports events, to movies, to parties, playing basketball, stick ball, wall ball, ball, cards and checkers, horses and numbers, riding bikes, shooting pool, dancing, visiting, laughing, drinking, smoking, watching t.v., watching out, watching.

As it stands, then, urban recreation is social because as neighbors, fans, voices, and ears, city people come together. The more convenient the meeting, the more natural and, thereby, the more successful. In Puerto Rican neighborhoods, the *bodegas*, the local grocery stores, are the centers of all activity and information, the grocer acting as a virtual social director and real estate agent.

Urban recreation is educational; a city kid learns most of anything he learns in the streets. It is this street experience that progressives are demanding substitute for college boards and high school grades in consideration for college entrance.

Urban recreation, with less chance for release and relief, is becoming a pastime of destruction and frustration for young and old alike. Karl Menninger explains that cities afford disastrously little opportunity for violent play, a combattant to the will of destruction.

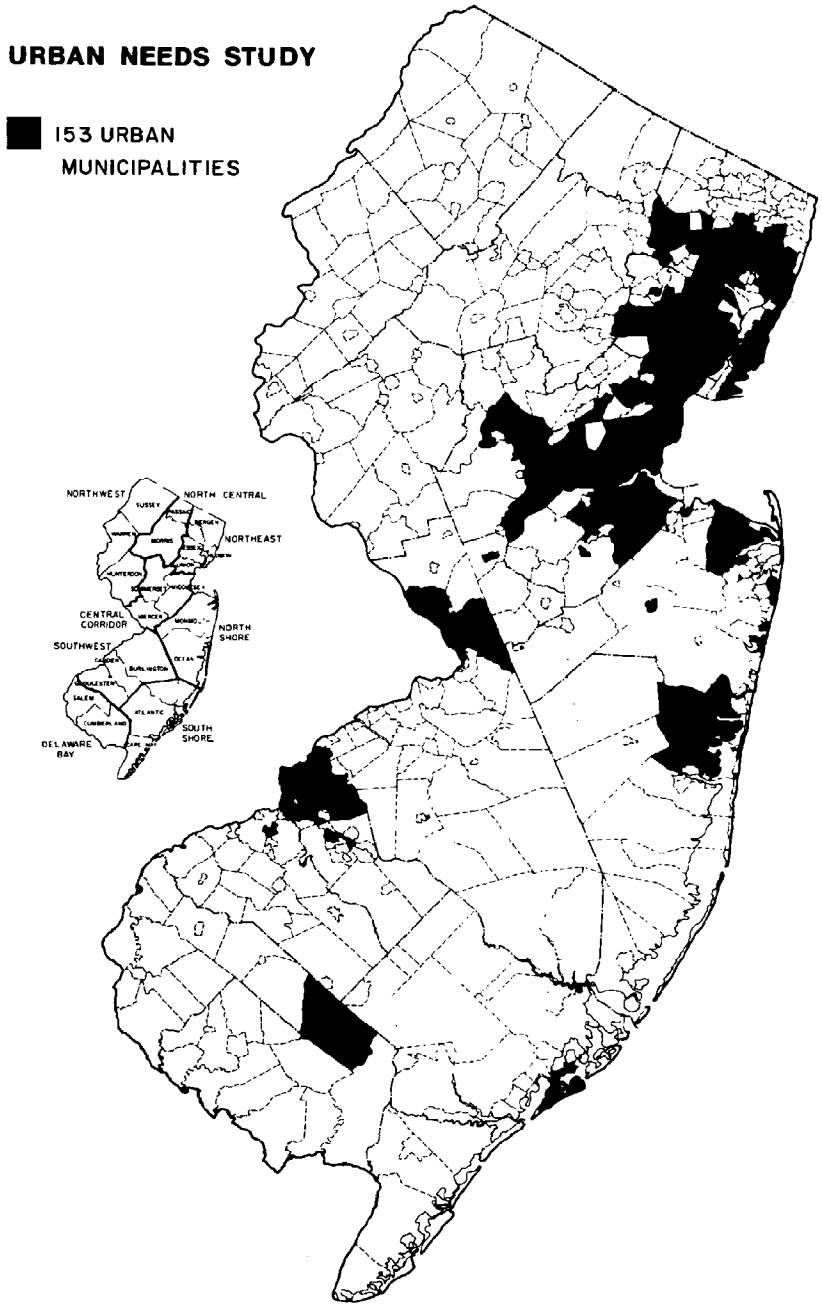
To enhance the social and educational aspects of urban recreation, both its physical and social sides should be emphasized. While the physical aspects stress the design, construction, and interrelationship among facilities, the social aspect should concern itself with creating the desired interrelationships among people. We should move from the corrective approach which aims to repair existing problems on a piecemeal basis by treating symptoms, and emphasize the creative approach by which change functioning at the causal level can be selected and monitored so as to achieve the highest level of opportunity and choice.

Parks, by definition, are an alternative to both cement and human density; cities, by definition, are a maximum of the two. Cities require, not to mention deserve, a greater quantity and variety of open space for recreation.

Supply-Demand Needs Analysis

The Urban Needs Study was undertaken to determine what facilities the municipalities should be providing to meet the recreation needs of urban residents. The study focused on activities which people normally seek within short distances of their homes, usually within their own community or neighborhood. The major responsibility for providing these facilities rests with municipal governments and, therefore, the survey includes only the supply of municipally owned recreation facilities and the resident demand for these facilities which municipalities are or should be satisfying.

The 567 municipalities in New Jersey vary considerably in land area and population. The smallest municipality comprises only 0.07 square miles (Lock Arbour Village in Monmouth County) and the largest is 115.05 square miles (Hamil-



ton Township in Atlantic County). The range in population size is also great. The smallest (Tavistock Borough in Camden County) had 12 people in 1970 and the largest was the City of Newark in Essex County with 378,222 people. In New Jersey the population is concentrated in a relatively few high population and high density areas. These are located primarily in the Northeast Region near New York City and extend down into central New Jersey to Trenton.

For the purposes of this study, an "urban city" is defined as one with a total population of 25,000 or more or with a population density of 5,000 people or more per square mile. A total of 153 municipalities of the State's 567 qualify as urban under this criteria. (See Map and Table 1.) The Northeast Region contains nearly half of these municipalities (77), representing 83% of the region's population. The Central Corridor Region follows with 26 communities or 77% of its population living in urban areas. Urbanization continues to spread southward rather than to the west, with the North Shore Region being 41% urbanized and the Southwest Region being 45% urbanized. Only the Northwest Region including Sussex, Warren and Hunterdon counties has no urban areas.

The 153 urban communities, representing 27% of the State's 567 municipalities, include over 4.5 million people. This comprises almost 65% of the State's total population but only 17% of the State's total land area. These cities showed a population increase of 20% over the past decade. The growth trends show that the largest cities are continuing slow decreases in population or at least a slower growth rate, while the suburbs are gaining population at a much faster rate.

The responsibility for providing recreation facilities within a municipality falls primarily on the municipal level of government. The thirteen facilities included in this study are most often sought close to home and therefore are those which local municipalities should be providing. These facilities include: baseball (regulation), baseball (youth), football/soccer, basketball, bocce/horseshoe/shuffleboard courts, handball courts, tennis courts, swimming pools, spray/wading pools, bicycle trails, outdoor stage, passive sitting areas and playlots. (See Table 2.) Although it is understood that the counties and to a lesser extent the State may be meeting some of the urban demand for these facilities, this does not obviate the need for municipalities to strive to meet the recreation needs that are clearly their responsibility.

TABLE 1: 153 URBAN MUNICIPALITIES POPULATION DATA 1970

Region	No. of Urban Municipalities	Urban Pop., % of Regional Population	Urban Pop., Distributed by Region	Population Growth Rate 1950-1960	Population Growth Rate 1960-1970
Northwest	0	0	0	0	0
North Central	4	20%	2%	177%	53%
Northeast	77	83%	62%	18%	5%
Central Corridor	26	77%	19%	49%	67%
North Shore	16	41%	6%	385%	178%
Southwest	25	44%	9%	70%	21%
South Shore	3	27%	1%	12%	-4%
Delaware Bay	2	29%	1%	21%	19%

SUPPLY

In order to determine the present supply of municipally owned recreation facilities in the 153 urban communities, a "Municipal Outdoor Recreation Survey" was conducted in 1968 and a similar inventory concentrating on the urban areas was conducted in 1971. Ninety-nine communities responded to the 1971 survey. Data from the 1968 survey was used for fifty-one communities. Three communities did not respond to either survey. To incorporate data for these, averages of supply information from urban municipalities of similar size and similar socio-economic characteristics from within the same region were substituted.

The 1971 survey included the 13 facilities chosen for the Urban Needs Study, but two categories included in 1971 had not been part of the 1968 survey—horseshoe/bocce/shuffle-

board courts and spray/wading pools. In order to incorporate data on these activities for all 153 communities, not just the ninety-nine responding to the 1971 survey, averages were again taken. These were based on population size and socio-economic characteristics of urban communities within the same region.

The 1971 municipally owned recreation supply for the thirteen activities is shown in Table 3, while Table 4 shows the number and kinds of parks in which these facilities are located.

As the inventory data reveals, each region's share of the existing municipal recreation supply is roughly comparable to the portion of the State's urban population residing in that region. The Northeast Region, for example, has 56% of the urban recreation supply and 62% of the urban population. These proportions vary with activity however. The Northeast Region has 61% of the basketball supply but only 50% of the football/soccer facilities. The Central Corridor Region has 19% of the urban population and 20% of the supply. This region, however, has only 9% of the handball courts and 13% of the basketball courts while it also has 26% of the passive sitting areas.

TABLE 2: FACILITIES INCLUDED IN URBAN NEEDS STUDY MUNICIPAL RESPONSIBILITY

Facility	Percent Municipal Responsibility
Baseball (Reg.)	80%
Baseball (Youth)	80%
Football/Soccer	80%
Basketball	80%
Bocce/Horseshoe/ Shuffleboard	80%
Handball Courts	80%
Tennis Courts	80%
Swimming Pools	50%
Spray/Wading Pools	90%
Bicycle Trails	85%
Outdoor Stage	40%
Passive Sitting Areas	90%
Playlots	80%

TABLE 3: SUPPLY OF MUNICIPALLY OWNED URBAN RECREATION FACILITIES 1971

	Region							
Facility	North Central	Northeast	Central Corridor	North Shore	Southwest	South Shore	Delaware Bay	State Total
Baseball (Reg.)	5	146	97	42	32	7	6	335
Baseball (Youth)	0	179	82	29	66	8	5	369
Football/Soccer	4	182	89	43	30	8	5	361
Basketball	18	606	131	69	133	27	4	988
Bocce/Horseshoe/ Shuffleboard Courts	1	281	100	58	36	21	0	497
Handball Courts	2	79	9	1	10	1	0	102
Tennis Courts	13	451	140	49	81	27	15	776
Swimming Pools	1	54	12	9	11	0	0	87
Spray/Wading Pools	0	122	25	5	33	0	0	185
Bicycle Trails (Miles)	0	5.2	7.4	1.8	1.9	1.7	0	18.0
Outdoor Stage	0	11	5	8	3	2	0	29
Passive Sitting Areas	3	519	280	167	34	50	3	1056
Playlots	15	693	189	73	102	29	17	1118
TOTALS	62	3328.2	1166.4	554.8	572.9	181.7	55	5921

Only 18 miles of bicycle trails have been provided by municipal governments in the urban communities and two regions (North Central and Delaware Bay) have none at all. A total of 41% of the available bicycle trails are located in the Central Corridor Region and 29% are in the Northeast Region. Considering the number of miles represented by these percentages, however, they do not indicate an impressive supply.

In Table 4 the number and type of municipal parks in the urban areas are tabulated by region—small neighborhood, large neighborhood, community, metropolitan and undeveloped. The facilities shown in Table 3 are located in a total of 817 municipal parks. Of this total, 45% are small neighborhood parks providing recreation facilities within walking distance of potential users. These are designed primarily to serve the elderly, with passive sitting areas, and the very young, with children's playlots or playgrounds. These parks also provide facilities, some court and field areas, for teenagers and adults. Another 20% of the parks are large neighborhood parks which provide recreation opportunities for all age groups. Thus, municipally owned recreation facilities are largely (65%) provided in neighborhood parks intended to be within easy access of the residents they are designed to serve.

There also appears to be potential undeveloped park areas in all but one of the seven regions. The exact size of these areas and their locations were not determined by the Urban Needs Study. However, every effort should be made to develop them either with recreation facilities or as open space attractively landscaped to provide a pleasing environment for urban residents who are all too often surrounded by buildings, pavement and general ugliness.

The adequacy with which this municipally owned resource meets the recreation needs of urban residents is difficult to assess with the information available. Further study of these resources must focus in greater depth on the exact location, visual and design characteristics, operation and maintenance, security or safety of the areas, and barriers in or surrounding the facilities, such as a high speed highway, that cut off the facility from potential neighborhood users.

TABLE 4: TYPES OF URBAN MUNICIPAL PARKS

Type of Park	North Central	North-east	Central Corridor	North Shore	South-west	South Shore	Delaware Bay
Small Neighborhood	1	163	118	48	20	14	0
Large Neighborhood	1	93	47	16	6	3	1
Community	0	38	12	7	5	2	3
Metropolitan	0	8	10	0	1	0	0
Undeveloped	0	37	7	16	4	1	0

Definitions of Classes of Areas:

Small Neighborhood: Recreation areas, less than 3 acres in size, which are located within walking distance of potential users. Playlots and vest pocket parks are considered in this category. Often small neighborhood parks feature children's play areas, multi-purpose courts and/or passive sitting areas.

Large Neighborhood: Parks, between 3 and 10 acres in size, which provide recreation opportunities for all age groups within a neighborhood. They generally serve an area no greater than a square mile. Common features of large neighborhood parks are playgrounds, baseball/softball fields, multi-use paved areas for court games, horseshoe and shuffleboard courts, and passive areas.

Community: Parks, 10 to 30 or more acres in size, which serve several neighborhoods and provide facilities which require more space than is normally available at neighborhood parks. In addition to the facilities found in neighborhood parks, community parks frequently feature sportfields, tennis courts, swimming pools and picnic areas.

Metropolitan: Parks generally exceeding 100 acres in size, characteristically less intensely developed than previously mentioned recreation areas. Picnic areas, boating and swimming facilities, nature centers and natural areas, and hiking and equestrian trails are among the features often found in metropolitan parks.

Undeveloped: Areas which will be eventually developed for recreation or retained for open space.

DEMAND

The demand methodology used in the Urban Needs Study was somewhat different from that used for the rest of the State Plan. This was due primarily to the fact that the ORRRC studies, which served as the basis for New Jersey participation rates,

TABLE 5: STANDARDS USED URBAN DEMAND

Facility	Standard
Baseball (Regulation)	1 per 6,000 people
Baseball (Youth)	1 per 3,000 people
Football/Soccer (Fields)	1 per 10,000 people
Basketball Courts	1 per 1,000 people
Bocce/Horseshoe/ Shuffleboard Courts	1 per 1,000 people over age of 55
Handball Courts	1 per 10,000 people
Tennis Courts	1 per 2,000 people
Swimming Pools	1 per 15,000 people
Spray/Wading Pools	1 per 1,000 people under age of 7
Bicycle Trails (Miles)	1 mile per 5,000 people
Outdoor Stage	1 per 20,000 people
Passive Sitting Areas	1 per 2,000 people
Playlots	1 per 1,500 people

TABLE 6: URBAN DEMAND 1970

Facility	Municipal Responsibility Recreation Days	% of Total
Baseball (Reg.)	.167	80%
Baseball (Youth)	.335	80%
Football/Soccer Fields	.1	80%
Basketball Courts	.5	80%
Bocce/Horseshoe/ Shuffleboard Courts	.097	80%
Handball Courts	.05	80%
Tennis Courts	.25	80%
Swimming Pools	1.65	50%
Spray/Wading Pools	.30	90%
Bicycle Trails (Miles)	.75	85%
Outdoor Stage	.081	40%
Passive Sitting Areas	.5	90%
Playlots	1.65	80%

did not provide participation figures for each of the activities included in the Urban Needs Study. For example, swimming and outdoor games were not broken down by ORRRC into separate activities or facilities included in the urban supply inventory—community pools and wading pools, football, basketball, etc.

Secondly, it was assumed that urban recreation standards are different from statewide standards that often reflect rural needs. To derive relevant participation rates for urban municipalities it was decided to start with standards that have been adapted to the urban environment. These standards tend to consider the number of facilities of greater importance than total available capacity. This is significant in urban areas because lack of mobility is a common limitation to participation.

TABLE 7: 1970 URBAN FACILITY DEMAND BY REGION

	REGION						
Facility	North Central	North-east	Central Corridor	North Shore	South-west	South Shore	Delaware Bay
Baseball (Reg.)	14	472	141	45	75	11	9
Baseball (Youth)	30	943	282	90	149	23	18
Football/Soccer Fields	9	283	89	27	45	7	5
Basketball Courts	69	2,830	845	268	447	64	53
Bocce/Horseshoe/ Shuffleboard Courts	16	586	131	57	72	19	11
Handball Courts	9	283	89	27	45	7	5
Tennis Courts	44	1,415	423	134	224	34	27
Swimming Pools	4	141	42	13	22	3	3
Spray/Wading Pools	18	311	104	32	54	8	7
Bicycle Trails (Miles)	17.8	566.0	169.0	53.7	89.4	13.7	10.6
Outdoor Stage	4	141	42	13	22	3	3
Passive Sitting Areas	44	1,415	423	134	224	34	27
Playlots	59	1,886	590	179	298	46	35

Thus, more, if necessary smaller, facilities are needed in the urban area rather than a few very large facilities that are inaccessible to large numbers of residents. The standards, chosen to reflect this situation, were then converted into recreation days per person. (See Tables 5 & 6.)

To derive urban demand figures for 1970, the regional urban population was multiplied by the recreation days per person for each activity and the peaking factor and then divided by the 1970 facility capacity standard.

$$\frac{\text{Regional Urban Population} \times \text{Recreation Days} \times \text{2\% Peaking Factor}}{\text{1970 Facility Capacity Standard}} = \text{Urban Facility Demand}$$

The demand for each of the thirteen facilities in 1970 is shown by region in Table 7. This table shows only the portion of the demand for these facilities which was determined as the responsibility of the municipal level of government.

NEEDS

The deficit or surplus of facilities was determined by subtracting the 1971 supply from the 1970 demand. (See Table 8.) Six of the eight regions were deficient in all activities, while the North Shore and South Shore had small surpluses in three activities — football/soccer, bocce/horseshoe/shuffleboard courts, and passive sitting areas. In spite of these surpluses it is clear that most of the demand for urban recreation is not being met by the municipalities.

The greatest deficit in the urban areas is in basketball facilities. An additional 3,588 courts were needed in 1970 to meet current demand for this activity. This is followed by playlots (1,975), tennis courts (1,525), passive sitting areas (1,245) and youth baseball (1,166).

The degree to which the existing supply meets the 1970 demand varies with activity. (See Table 8.) Statewide, 78% of the urban football/soccer demand is now being met by municipal facilities but only 2% of the bicycling demand is being met. For all 13 facilities, only 32% of the 1970 demand is being met by municipal governments. The percent of the demand met by existing municipal facilities varies from region to region. The Northeast Region, for example, is satisfying 64% of its football/soccer demand while the North Central Region is meeting only 44% of its football/soccer demand. The Central Corridor Region, on the other hand, is meeting all of its football/soccer demand and the North Shore has a surplus of these facilities. Similar variations are found in all facility comparisons and the percent demand met ranges from 18% in the North Central Region to 67% in the South Shore Region.

Although 30% of its demand is now being met, the Northeast Region has the greatest need for facilities of all the regions. This is not unexpected since the Northeast contains 83% of the urban population. The rank order of the seven regions having urban areas is approximately the same in facility needs as in percent urbanized population. The only exception is the North Central Region which ranks last in percent urbanized population and fifth in number of facilities needed.

TABLE 8: FACILITY NEEDS AND PERCENT DEMAND BEING MET BY EXISTING SUPPLY, STATEWIDE AND BY REGION, 153 URBAN MUNICIPALITIES, 1971

Facility	Statewide		North Central		Northeast		Central Corridor		North Shore		Southwest		South Shore		Delaware Bay	
	Facility Need	Percent Demand Met	Facility Need	Percent Demand Met	Facility Need	Percent Demand Met	Facility Need	Percent Demand Met	Facility Need*	Percent Demand Met	Facility Need	Percent Demand Met	Facility Need*	Percent Demand Met	Facility Need	Percent Demand Met
Baseball (Reg.)	432	44%	9	36%	326	31%	44	69%	3	93%	43	43%	4	64%	3	66%
Baseball (Youth)	1,166	24%	30	0	764	19%	200	29%	61	32%	83	44%	15	34%	13	28%
Football/Soccer	104	78%	5	44%	101	64%	0	100%	(16)	159%	15	67%	(1)	114%	0	100%
Basketball	3,588	22%	51	26%	2,224	21%	714	16%	199	26%	314	30%	37	42%	49	8%
Bocce, etc.	395	56%	15	6%	305	48%	31	76%	(1)	102%	36	50%	(2)	111%	11	0
Handball Courts	363	22%	7	22%	204	28%	80	10%	26	4%	35	22%	6	14%	5	0
Tennis Courts	1,525	34%	31	30%	964	32%	283	33%	85	37%	143	36%	7	80%	12	56%
Swimming Pools	151	37%	3	25%	87	38%	30	29%	4	69%	11	50%	3	0	3	0
Spray/Wading Pools	339	35%	18	0	189	39%	79	24%	27	16%	21	61%	8	0	7	0
Bicycle Trails (Miles)	*902.2*	*2%*	*17.8*	*0*	*560.8*	*1%*	*161.6*	*4%*	*51.9*	*3%*	*87.5*	*2%*	*12.0*	*12%*	*10.6*	*0*
Outdoor Stage	209	12%	4	0	130	8%	37	12%	5	62%	19	14%	1	67%	3	0
Passive Sitting Areas	1,245	46%	41	7%	896	37%	143	66%	(33)	125%	190	15%	(16)	147%	24	11%
Playlots	1,975	36%	44	25%	1,193	37%	401	32%	106	41%	196	34%	17	63%	18	49%
TOTALS	12,394.2	32%	275.8	18%	7,943.8	30%	2,203.6	35%	517.9	52%	1,193.5	32%	91	67%	158.6	26%

*Numbers in parenthesis indicate a surplus of facilities.

Conclusion

The Urban Needs Study demonstrates that the problems and needs of New Jersey's urban areas are great. Because of its high overall population density, New Jersey is probably experiencing a degree of urban need greater than most other states. The needs of urban areas will become increasingly important because the proportion of the population living in urban areas will continue to increase in the years ahead at a greater rate than the growth of the State's total population. But since urban development has been concentrated in a small portion of the State's total land area, New Jersey still contains vast open space resources.

In the suburbs, public land is usually a supplement to a private yard. In the city, however, the municipal grounds must play a dual role. The urban park must offer more and different kinds of space—different kinds of space to more people who cannot provide it for themselves, who feel to the point of provocation the conspicuous lack of these opportunities. Park spaces must be where people already are—on their paths, almost in their way. Vest pocket parks, hopefully styled on the copious wardrobe of Sebastian Cabot, should be found on any variety of lost lots. Some sites simply need refuse clearance to disclose recreational space. In some cases, a city can complete or initiate demolition on an available or accessible plot. Or, in the case of land vacant on a transitional basis, the city can provide instant or temporary facilities on location. The fresh vistas revealed by razing cement curtains can be as functional as they are exciting.

Another resource for urban recreation is multiple site use. "Slums" are frequently characterized by "mixed uses," or the presence of industry within a residential section. These nine-to-five operations invariably need parking lots, lots that are vacant in the evenings and on weekends. With a liability release, the city can efficiently turn these blacktops into basketball courts. Similarly, shopping centers, which the merchants make sure are fed by bus routes, stagnate on Sundays with enough car space for a baseball diamond.

In the late 1940's LeCorbusier built his Unité d'Habitation on the outskirts of Marseilles. This apartment building was a landmark in convenience as well as design. The seventh floor is a miniature Main Street (including a national supermarket branch, a dry cleaner, a bakery, and a hotel) and the rooftop is a complete recreation center (a children's pool, climbs and slides, a weight-lifting gym, and a quarter mile track). The view from the Empire State Building or Billy Penn's toe presents the city as an expanse of free space—free from buildings, free from use. These acres of opportunity can be suited to recreation lands.

Air rights are a recent commodity on the real estate market; while use has been made of vacant space underneath highways for quasi sports courts, the concept of bridging roadways with playgrounds as they bridge the Arno with jewelers shops in Florence and the Po with shoe stores in Rome, has not been thoroughly explored. This approach to finding additional recreational space deserves study although potential problems and limitations have been noted in the use of air rights for development of housing and office buildings.

Concomitant with multiple use planning is the extended use of extant recreation facilities. Good lighting would not only expand the hours an activity is possible, but also greatly broaden the group it serves. The employed have an option on facilities that used to work only when they worked. (Suburban department stores stay open every night until at least nine for that very reason.) School gyms and grounds close early in the evening. There is no reason why these recreation provisions should not be accessible in the evenings and on weekends all year round.

Unfortunately, no computer is necessary to discover a city neighborhood in need of recreation space. An entirely field survey to map any open space at all—from extant parks to parking lots—would designate the potential sites for contemporary urban recreation projects. Recognizing and utilizing all space available, even if it is not available all the time, facilitates the separation of competing user groups. (This is more important with little kids and preteens than with the active/passive distinction as is commonly thought. Ball players, after all, like to be watched and sitters certainly like something to see.) The renovation of deteriorated land is an aid, not an answer; so is neighborhood interest.

It is next to impossible to make up in seductive equipment what people lack in habit. This does not mean that kids will not use a new swimming pool because they are not used to going swimming; battling the frustrating heat of the summer is a habit in itself.

To encourage habit in any new facility it must be open all the time—open in hours and open at the ends. Locked gates and closing times increase estrangement, interfere with repeated use, and decrease convenience. The same applies to seasonal or one shot deals. On Friday, when the little kids finally get used to going to the mobile zoo on the corner, they find it won't be there on Monday. While the teenagers can hang at a green filled lot when it's warm, there's no equivalent when it's cold. While everyone is shown movies and plays outdoors every week in the summer, there are no free indoor shows throughout the winter months. Recreation needs are not sporadic. Besides, the more people become accustomed to something, the stronger the interest base from which to work.

The continuing success of a project tends to reinforce itself. If a park is well used then the people themselves protect it with their pride and their presence. All that use, i.e. success, demands is maintenance. Maintenance is not an innovation. Yet it is treated as a strange new brew to be passed or disre-

garded. One ploy, which fell altogether in its own pile of garbage, was to have the neighbors keep their own parks clean. By some rationale, if the city park is to perform as a backyard, then those who claim it should take care of it. However, public land anywhere else is taken care of by public authorities, so why should these people, whose prime capital asset is labor, be asked to work for free.

Diversity is another success factor. Dull, after all, is dull. People look out windows to see what is going on because there is something to see that has never happened on the kitchen table at which they sit. The whim of the street is the personality of a city. Similarly, planned places must offer a visual and an eye-level diversity as well as a participatory one.

Riverside Park in Manhattan is proof. The sliver of land on the Hudson's edge from 72nd to 158th streets is given character by the successive neighborhood it flanks. The vista is certainly intriguing, yet it is easily topped in variety by the range of activities occurring—folk dancing, fishing, baseball, jogging, dog walking, sleeping, soccer, golf putting, sandboxes, sitting, sunbathing, car washing, car wrecking, picnicking, bike riding. Although Riverside Park may be filled because there are no alternate parklands, other reasons also contribute to its success: (1) it is conducive to any number of pastimes; (2) it is convenient (the fields to the west of the highway on the shore, the nicest part of the park, are conspicuously empty because they are inaccessible by foot); and (3) the different segments of the 293 acre belt have won self-appointed community proprietorship.

The paragon of natural versatility in a man-made structure, exemplary for park and program planning, is the city building. It can be hidden in, climbed up, swung from, walked over, met by, written on. The urban tree.

In our economically oriented society, the acquisition of land claims the major expenditure and is the greatest obstacle to creating amenities in the city. When the sheriff sales trick in Philadelphia works, it is because sheriff sales occur in run-down neighborhoods. The donation gimmick works every once in a while in Manhattan because there are a few rich-living people. There's the magazine ad that promises your name on a plaque if you send a check to make a vest pocket park; or the

non-liability rental, where the owner lets the city use his land for recreation purposes without risk of suits; or multiple use sites; the most expedient, of course, is city-owned land.

Put this all together it spells block parks—the conversion of streets to parks from parking lots. The unique character, the inimitable attraction of the city street has been acclaimed by Jane Jacobs, Bernard Rudofsky, and William H. Whyte. Rather than scorn street play as a choiceless choice, an urban recreation system should plan for and with it. Closing blocks on some schedule is the plainest approach. It can be glorified with curbside trees and sidewalk benches for the sitting generation. Perhaps, as in Bedford-Stuyvesant, the streets could be closed permanently, dirt filled, grass lined, and used. A new version of superblock develops—instead of the joint backyards of Radburn, a communal front yard for Inner City. Growing in number, these greenstreets grow connectable. A brand new kind of linear park winds through the city in the beneficent fashion of a countryside greenbelt.

We have taken city owned land that is so accessible to everyone whom it is to serve that it is already a habit; that has a diversity of uses, the least of which being the one to which it is devoted—car storage; that is well protected by the windows which overlook it and the people who inhabit it; that is part of an established maintenance system; that is geared to socializing; that is viable for education (of skills through the renovation, of nature through the planting, of anything through eventual programming); that is the last remnant of open space in the city scape—and we turn it into an amenity.

This is not to say that a block park system is the solution to urban recreation and its problems. Rather, it is this kind of analysis that acknowledges the choices city people have already made and assimilates those factors that apparently have brought success.

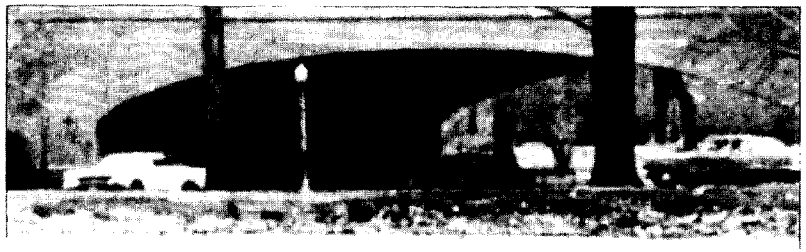
Implementation of the park projects must be a fresh approach. The recipient community must be involved at all stages. A procedure should be established whereby residents can: request—when demand has not been spotted; plan—representatives of age groups to be served advise professionals; build—from assembling the equipment to writing in the wet cement; maintain—small repairs, general litter, on a rotational basis; supervise—programs, protection. Hopefully, the participation will increase pride at the expense of vandalism.

Since the theory of planning per se rests on the continuing knowledge of human capabilities and desires, actual citizen participation can be the most effective way of guiding planning action. In this manner, recreation demand can be recognized and compiled. People who want something say so and thus comply to a local participation plan. Their interest is the collateral. Then, the demand revealed, population and facility statistics can be checked to decide among groups or to qualify for appropriations and expenditures. However, broad surveys to establish "What City People Want in Recreation" must be recognized as generalizations which fluctuate not just from city to city but from neighborhood to neighborhood; these surveys should not be utilized as equally applicable to all neighborhoods.

Decentralization has been advocated for everything from Boards of Education to the Metropolitan Museum of Art. A recreation department structure with control on the local level is more than a reasonable demand, it may be a solution. Thus far, urban recreation has developed in spite of negligent city governments. Apparently, people can show themselves a good time without a Commissioner's aid. The infamous "needs" that are so hard to determine from city hall are self-evident to a local mother.

There have been some small scale attempts at local control where the neighborhood is custodian of its own vest pocket park. In Philadelphia's program alone, the outcomes ranged from great to terrible. It was felt, however, that some getting among the neighborhood sponsors would have been helpful to the point of improvement. Further, it would give the people the strength to face the allocating agencies on equal footing.

Surveys of available land and existing facilities are important, demonstrably so when correlated to age groups, median incomes, and population density. These four items are to city recreation what acres per thousand are to non-urban recreation, and probably more relevant. Walking distance radii complement the total population and age density figures. A London study showed that the distance people are willing to walk to city parks is partly a function of the total number of people



within the zone of origin. This is not an excuse to lengthen the radius per park, but an emphasis of need. Walking distance can pose a special dilemna in regard to the inner city; while it may work well to estimate one neighborhood's needs, it can be quite irrelevant when the route a person is willing to walk is a matter of turfs, not crosswalks.

While the statistics of a survey and the answers to interest questionnaires indicate general needs, they do not guarantee success of a project. There must be a series of test runs that show whether the project will work in practice. The time, effort, and money given to any general poll belong to the projects themselves, which will not only yield more reliable results, but also help people instead of pollsters.

In a trial of a street park, as with any experiment, it is very important to have more than one pilot project. Any conclusions drawn from one test run is a generalization drawn from the specific. By trying out several block parks or whatever at once, not only is a more valid study made with accounts for the random variables in communities, but more people are served sooner.

The several initial trials under one jurisdiction is a far safer measure than results extracted from printed information which probably is outdated or distorted or plain lying. The best way to draw from recreation projects tried in another city is to speak directly with the person who ran it, with someone on the staff as well, in case Number One is too public relations minded himself, and also to speak with the people for whom the project was established.

All projects so far have a shocking paucity of back-checking reports. This lack of continual reevaluation contributes to a large cause of failure, the same way that a lack of maintenance drags down the physical condition of a park at an increasing pace. An information maintenance system must be instituted or a program can fall apart the day after the press photographers leave.

Education, one of the terms of urban recreation, is far more than that. It is a separate entity that city people have specified as a highest priority demand. Thus, recreation that includes education is not only natural but is satisfying a much more important need than the call for playgrounds. The first step is to establish programs in the parks rather than just installing facilities. The programs can range from sports instruction to first aid to automechanics. Programs should be available for adults as well and on a year-round basis. The effect of a good staff far outweighs the influence of equipment, both as teachers and motivators.

The process "Staffing" can bring in another educational system: the training of local teens to become recreation leaders. This was tried and proved successful in Phoenix, Arizona (in a federal grant program which trained local youngsters for park leadership with the guarantee of employment) and in Rochester, New York. In Stockholm, recreation leaders are given the status and salary of teachers. This could fill a demand

for training, open a job market, and move the political payrollees out of recreation positions. In 1967, four New York City junior high schools offered a "Planning for Change Curriculum." The students surveyed their own neighborhoods (primarily for housing and recreation facilities), pinpointed shortcomings, discussed alternatives, and worked with legitimate officials for improvement.

A logician's solution to the no recreation space problem is a no recreation space program. There are Ins and Outs. The Outs transport city residents to fringe or farther parklands. Bussing programs which have dealt with this have been limited to children in the summertime. It is the type of recreation that should be available to families together on a year-round basis. So far, the bussing has been as an organized trip, ostensibly because children are involved. Whether some bus pass system is workable must be tested. If people are not used to going to an out-of-town bus depot and going out of town, the chance for a bargain ride may be no inducement at all. Meeting friends on a corner, planning a meal for the family are a comfortable transition to a local chartered bus. This, of course, must be tried several times in several places to be brought from logic to reality.

The Ins are items brought into the city neighborhood, oblivious of the (non) space they find there. Jazz, pools, rides, and zoos are established presentations on wheels. Mobile theatres have a greater chance of success if local talent is recruited in advance to participate with and learn from the professionals. These forms of instant recreation, epitomized by the spray cap on a fire hydrant, balance on the narrow line between alleviation and demeaning placation.

Programs should promise more than immediate effect. Derivatives of education are a vital element of urban recreation. The scope of recreation for the urban dweller needs a contemporary reevaluation. The list makers have continually bypassed several modes.

Sports clinics should be established regardless of season with volunteer help from famous names. Nashville offers mechanical and musical instruction on revamped urban park sites.

Dancing is as serviceable as it is popular. Bands, particularly local groups, should play on a regular basis, indoors and out. They could be hired and paid, or compete for a monthly monetary prize.

Television and movies can be utilized. Television has been condoned by the British with plans to install sets in London squares. City children could be given movie cameras and their films can be shown on their own city streets. Several small scale projects have distributed equipment with terrific results. In one case, neighborhood mothers sewed together laundromat donated sheets for a screen which hung down the facade from the top windows of a row house. There is no rule that outdoor movies must be spacewasting drive-ins.

Many older cities are founded on waterways which have not been exploited by recreation planners. Bicycle paths and hiking trails can be developed on the banks within a comparatively narrow margin. Inoperative boats, like the ferries off Hoboken, can be renovated to amusement ends.

Philadelphia, correlating the lack of space for schools with the disposal value of the fixed classroom, divised the Parkway School; high school students attend classes in the various buildings and institutions along the thoroughfare. Similarly, a recreation program in any season can coordinate the cities' resources into a peripatetic path.

Education through recreation is not solely planned programs. The kind of analysis that combines urban habits and urban needs developed the Adventure Playground. It is as challenging and instructive as city streets; it can be put virtually anywhere, the less developed the better; it requires almost no capital investment, other than a very hip leader. The creative and destructive impulses are catered to, instructive guidelines are available, not imposed.

A very important aspect of urban recreation that has been almost intentionally overlooked by oldtime recreation planners and funders is that a great deal of it goes on inside. In the summer there are far more indoor activities in the city than in the suburbs—sitting through the same movie twice in an air-conditioned theatre is a July afternoon of swimming and boating to the suburban kid; in the winter there are virtually no outdoor sports in the city—what is snow and sleigh rides to commuters' children is slush and pinball downtown.

The analysis that brought us to block parks also points to community centers. This time we are reassured by the several requests by neighborhood groups for such a building. It is concomitant with the terms of urban recreation, offering a social center, an instructional center, a training center, a community organization center, an all year center. Like an outdoor place, it requires convenience, diversity, openness, staff, programming, maintenance, and people. Walls are no innovation in a city; and both sides affect urban recreation.

Standards for recreation should aid in the creation of opportunities. The choice to join friends, a program, a game; to have ball fields, trees, control; to sit, to run, to create; to be taught, to be alone, to be pleased.

For the moneyman, it is as hard to pick which among these is to be satisfied as it is to pick which among neighborhoods is to be funded.

The general demand seems to indicate the following priorities: having control, then, having equipment; having programs, then having open space; having something to leave the city for, then, having a way to get there; having for a long time to come, then having right now.

What must be done is to try things.

LEGISLATION AND RELATED ACTIONS VII

Since the completion of the original Statewide Comprehensive Outdoor Recreation Plan in 1967, New Jersey has taken bold steps forward, through effective, far reaching legislation to protect and preserve its environment in order to enhance the quality of life for its citizens. Some of the recommendations presented in the previous plan were enacted into law—Flood Plain Control Act and the Green Acres Bond Act of 1971 authorizing a public referendum for the issuance of bonds totaling $80 million to finance public open space acquisition.

Legislation

The Department of Environmental Protection Act of 1970 (N.J.S.A. 13:1D-1 et seq.) adopted April 22, 1970 (Earth Day).

On Earth Day, April 22, Governor William T. Cahill signed into law legislation creating a new department in New Jersey State Government called the Department of Environmental Protection. The legislation became effective May 2.

The new department consists of units previously attached to the Department of Conservation and Economic Development and the State Department of Health. The Division of Clean Air and Water, formerly in the State Department of Health, is now transferred to the Department of Environmental Protection and renamed. The purpose of creating the new department is to unite under one administrator all the State's major functions in behalf of environmental protection and to avoid unnecessary duplication of activites.

The Department of Conservation and Economic Development ceases to exist as such although its functions will be continued, those dealing with ecology and conservation being a part of the new department and those pertaining to economic development being transferred to the Department of Labor and Industry. Advisory councils of the respective units are similarly transferred.

A later reorganization put all aspects of water supply and quality into a new Division of Water Resources. This included the bureaus of Water Control, Water Facility Operations, Geology, Water Pollution Control, Potable Water, and Water Resources Planning and Management.

The reorganization also created a Division of Environmental Quality which besides regulating air pollution codes, includes control over the bureaus of Radiation Protection, Solid Waste Management, Office of Pesticide Control and Noise Control Program.

The Division of Marine Services brought together the Bureaus of Navigation, Marine Lands Management and Marine Law Enforcement, plus supervision of the Marine Police Academy and administration of riparian lands.

Bureaus within the Division of Fish, Game and Shellfisheries include Wildlife Management, Fisheries Management, Fish and Game Coordination and Law Enforcement. Activities include deer management and propagation and the state fish hatchery and quail farm.

The Division of Parks and Forestry administers the bureaus of Parks, Forestry supervises reforestation, the pres-

ervation of historic sites, and has a forest fire protection section.

Special programs carried on by the department include the development of reservoirs and the acquisition of lands for water supply, recreation and open space needs.

The public plays an important role in formulating policies and activities of the department. At present there are 18 statutory citizen councils representing both the public at large and specialized groups associated with various disciplines used by the department.

New Jersey Green Acres Bond Act of 1971, approved by the Legislature May 26, 1971 and approved by the voters November 1971 (P.L. 1971—Ch. 165).

New Jersey's strategic location in relation to the New York and Philadelphia metropolitan areas and its resultant desirability as a site for industrial and residential development, has placed tremendous stress on the remaining open space in the State. To provide for open space acquisition across a broad range of land uses for recreation and conservation purposes, the Green Acres Program has been established.

The Green Acres Program has two main objectives: (1) to assist counties and municipalities in New Jersey to obtain local community recreation lands; and (2) to enable the State to acquire significant areas for recreation and conservation. The Program is financed by bond issues approved by public referendum. The initial bond issue in 1961 appropriated $60,000,000 of which $40,000,000 was for state acquisition and $20,000,000 was for reimbursement to counties and municipalities for one-half the money they spent on their own acquisition. Although over 100,000 acres of open space were acquired under the 1961 Program, much potential acreage was not able to be funded because of the exhaustion of the bond issue.

To continue and improve the work of the 1961 Program, a second bond issue was approved by the State's voters in November 1971 for $80,000,000—the New Jersey Green Acres Bond Issue of 1971. Emphasis of the 1971 program gives first priority to buying lands for recreation opportunities for the urban population, especially those people who can not travel to facilities in outlying areas. The second type of acquisition is for the purchase of land with unique ecological value; a third aspect is the purchase of land to complete major state projects begun under earlier bond issues.

Water Conservation Bond Act adopted by the Legislature July 2, 1969 and approved by the voters November 1969 (P.L. 1969—Ch. 127).

The growth of population and the expansion of industrial development together with the inadequacy of sewerage systems and water supply facilities contribute in large part to water pollution in New Jersey. The adverse effects of water pollution resulting from these inadequacies have to be combatted on a comprehensive regional basis in order to provide an environment conducive to the health, safety, and welfare of the citizens. The Water Conservation Bond Act authorizes the creation of a debt of the State by the issuance of bonds for the planning, acquisition, construction, and maintenance of reservoir and sewerage facilities to achieve a healthy environment for all. The Act also provides ways and means to pay the debt interest and to pay and discharge the principal thereof.

The bond issue was in the amount of $271,000,000 of which $29,000,000 is for planning and site acquisition for water supply facilities at seven sites and $242,000,000 for the construction of waste water treatment facilities. The latter figure represents the State's 25% share of the eligible costs of construction which is a prerequisite for the 55% to be provided by the Federal Government through the Federal Water Pollution Control Act.

The Wetlands Act of 1970 (N.J.S.A. 13:9A-1 et seq.) adopted November 5, 1970.

Signing of the Wetlands Act by Governor Cahill on November 5, 1970 was one of the most important steps ever taken to protect New Jersey's natural resources. The purpose of the Act is to promote the public safety, health and welfare, to protect public and private property, wildlife, marine fisheries and the natural environment. These goals will be furthered by the preservation of the ecological balance of the wetlands and

by preventing the area's continued deterioration and destruction. To accomplish this the Act requires the State Department of Environmental Protection to set regulations controlling future use of areas defined as coastal wetlands.

For the purposes of this Act, wetlands are defined as any bank, marsh, swamp, meadow, flat or other lowland subject to tidal action and upon which grow certain species of grass and plants. The Act includes the Atlantic Ocean coastal strip from Sandy Hook to Cape May, the coastal inland waterways extending southerly from Manasquan Inlet to Cape May Harbor, the Delaware Bay and Delaware River, Raritan Bay, Barnegat Bay, Sandy Hook Bay, Shrewsbury River including Navesink River and Shark River. When boundaries are defined, it is expected that the wetlands will total between 335,000 and 400,000 acres. Specifically exempted are those lands under the jurisdiction of the Hackensack Meadowlands Development Commission.

The Act requires the Commissioner of the Department of Environmental Protection to make an inventory and maps of all wetlands within two years of the effective date of the Act. The Commissioner is also directed to establish regulations restricting or prohibiting dredging, filling, removing or otherwise altering, or polluting coastal wetlands.

Before these regulations are adopted, a public hearing must be held in the county where the affected wetlands are located. Any person wishing to conduct a regulated activity within the regulated area must apply for a permit with the Commissioner of the Department of Environmental Protection. If the permit provisions are ignored or violated, facilities for legal enforcement are provided in the form of fines and restoration costs.

Flood Plain Control Act (N.J.S.A. 58:16A-50 et seq.) adopted December 14, 1972.

Past flood plain management has been deficient in that it has been occupied with reclamation for development purposes without consideration of the increased magnitude of flood flows which have resulted as bordering open lands have been converted to asphalt and concrete; it has been incompatible with natural values. The results have been environmental deterioration, economic loss, and loss of life. The Flood Plain Control Act recognizes the need for a reversal of past philosophies so that flood plains can be judged not on their real estate value but on their ability to safely conduct existing and anticipated flood flows and on their auxiliary values—accumulating soil nutrients, and providing for natural stream channel configuration, recreational uses, agricultural uses, open space, and fauna and flora habitat.

This Act gives the Department of Environmental Protection the authority to share in the regulation of development in flood prone areas of the State by delineating, after public hearings, these areas and then publishing controls applicable to those areas most likely to be flooded. These controls will require that the lands can be developed only in a manner compatible with their natural purpose of conducting flood waters. Local authorities would be given one year to adopt zoning regulations in accordance with state guidelines for the remaining delineated areas, otherwise the State would assume primary responsibility.

The Act recognizes that land is both a commodity and a limited resource which must be utilized appropriately so that not only will the environment be protected from exploitation by man, but that man will be protected from exploitation by the environment.

Clean Ocean Act (N.J.S.A. 58:10-23.25 et seq.) adopted June 1, 1971.

The Clean Ocean Act formally recognizes the threats from pollution and authorizes the New Jersey Department of Environmental Protection to adopt rules and regulations for the disposal of sludge and other waste materials. Control over these operations will be achieved through a system of licenses and permits regulating the handling of wastes within the State, as well as their loading onto barges.

Regulations will have two purposes. One will be to gather data on the scope, size and practices of existing ocean dumping methods. The other will be to impose an outright ban on ocean disposal of dangerous wastes, especially those for which

Youth Conservation and Recreational Development Projects Act (N.J.S.A. 9:24-8 et seq.) adopted July 9, 1968.

The purpose of the Youth Conservation and Recreational Development Projects Act is to provide immediate impact on urban areas in the field of recreational opportunities. Major emphasis to date has been placed on the bussing program in which, after the sponsoring agency certifies the trip, the State makes payments directly to the carrier for the bussing services provided. The Commissioner of Environmental Protection is authorized to make 100% grants to provide transportation for "disadvantaged youth" into state parks and forests. Because of the capacity inadequacies of state recreational facilities to handle all groups funded, transportation provisions have been extended to other recreational and cultural facilities in New Jersey and metropolitan Philadelphia and New York.

In addition to the bussing program, the Act provides for 50-50 matching funds to municipalities and counties for the purchase and installation of recreational facilities and equipment. Grants have been authorized to the New Jersey Department of Community Affairs for a Joint Youth Conservation Project on the Delaware and Raritan Canal in Trenton.

To implement the program, the Legislature has appropriated $500,000 per fiscal year on an annual basis.

Environmental Education Act (N.J.S.A. 18A:6-80 et seq.) adopted August 4, 1971.

To promote an environmentally sensitive citizenry, knowledgeable regarding their interdependence with and responsibility for the total environment through improved environmental education is the aim of the Environmental Education Act. This Act authorizes the Commissioner of Education to promote the establishment and operation of local public and private elementary and secondary school environmental education programs. In conjunction with the Commissioner of Environmental Protection, the Commissioner of Education is authorized to develop and operate Regional Environmental Education Centers and facilities which will aid in developing environmental education programs in each school district. This Act also designates certain Environmental Education Curriculum Research and Development Centers which, in addition to their research and curriculum development activities, also provide the school districts, local environmental commissions, and environmental interest groups with services ranging from consultation and teacher training to demonstration pilot programs and curriculum and facilities development.

The New Jersey American Revolution Bicentennial Celebration Act (N.J.S.A. 52:9P-1 et seq.) adopted March 2, 1973.

The New Jersey American Revolution Bicentennial Celebration Act will be the means of commemorating the significant role which New Jersey played during the period of the American Revolution and in the subsequent development of the United States.

The Act establishes in the Department of Education a twenty-two member New Jersey Bicentennial Celebration Commission with the Governor as honorary chairman. This Commission is empowered to plan and coordinate an overall statewide program in cooperation with cities, counties, regions, and other appropriate public and private agencies. The Commission's duties also include cooperation with the Federal American Revolution Bicentennial Commission in coordinating commemorative activities in the State.

The Act authorizes the Commission to remain in existence, together with the provisions of the Act, until June 30, 1984.

Liability Limitation Act (N.J.S.A. 2A:42A-2 et seq.) adopted June 21, 1968.

One of the myriad of problems connected with the provision of recreation facilities on private lands is the fear by the owners that any injury or fatality resulting from the use of these facilities will entail a law suit against them. The purpose of the Liability Limitation Act of 1968 is to assure the owner, lessee, or occupant of private lands which are utilized for sport and recreation activities in certain cases that he does not assume responsibility or incur liability for any injury or fatality to the person or property utilizing his premises.

This Act does not limit the liability resulting from willful or malicious negligence on the part of the owners or resulting on land for which a fee is charged over and above the fee paid to the owner by the State.

Appalachian Trail Acquisition and Maintenance Act (N.J.S.A. 13:8-29 et seq.) adopted March 7, 1973.

Virtually all of the 2,050 mile Appalachian Trail stretching from Georgia to Maine will be under public protection shortly. The segments of the trail which pass through High Point State Park and Stokes State Forest are already under public ownership and the section extending from the lower boundary of Stokes State Forest to the trail's crossing into Pennsylvania at the Delaware Water Gap will be acquired by the National Park Service as part of the Delaware Water Gap National Recreation Area. A sixteen mile section of the trail extending from High Point State Park to Abram S. Hewitt State Forest will not be protected without public action. This Act authorizes the Department of Environmental Protection to acquire easements over the unprotected segments of the Appalachian Trail in New Jersey.

The Pesticide Control Act of 1971 (N.J.S.A. 13:1F-1 et seq.) adopted June 1, 1971.

The directive of the Pesticide Control Act of 1971 is that regulations be established for controlling the sale, purchase, transportation, labeling and use of any pesticide in New Jersey which might cause adverse effects on man or the environment.

Regulations will apply to everyone: home gardeners, farmers, orchardists and professional pesticide applicators as well as public agencies under the jurisdiction of state, county or local governments.

A section of the Act states, "Pesticides have been of value in preventing the outbreak of diseases and assuring bountiful production of agricultural crops, however, indiscriminate use of pesticides in this State would constitute a serious threat to the environment; . . . this threat can be eliminated only by the adoption and enforcement of regulations governing the sale, use and applications of all pesticides."

The same Act provides for the establishment of a nine-member Pesticide Control Council to advise the Department of Environmental Protection in matters of pesticide control, regulation and use, and designates the School of Agriculture of Rutgers, the State University, as a primary source of technical and research assistance for the Department.

Membership of the council consists of six public members plus the New Jersey Secretary of Agriculture, Commissioner of Health and the Dean of the College of Agriculture and Environmental Science of Rutgers University. The public members include one farmer, one toxicologist, one ecologist and three members representing the public-at-large. Public members are appointed by the Governor and he selects the chairman and vice chairman from among them.

Noise Control Act (N.J.S.A. 18:1G-1 et seq.) adopted January 24, 1972.

Under the Noise Control Act, signed into law by Governor William T. Cahill on January 24, 1972, the Department of Environmental Protection is empowered to control the generation of those levels of noise in the community which are or tend to be injurious to human health or welfare or would unreasonably interfere with the enjoyment of life or property.

The Act also established a thirteen-member Noise Control Council. Its duties are to review noise problems and suggest corrective measures to the Department. It can veto regulations proposed by the Commissioner.

Waste Control Act (N.J.S.A. 13:1I-1 et seq.) adopted February 21, 1973.

In an effort to conserve New Jersey's dwindling supply of land suitable for solid waste disposal, the Waste Control Act was enacted by the New Jersey Legislature. The Act provides for the control and regulation of the disposal within the State of solid and liquid waste collected outside of New Jersey.

Executive Orders

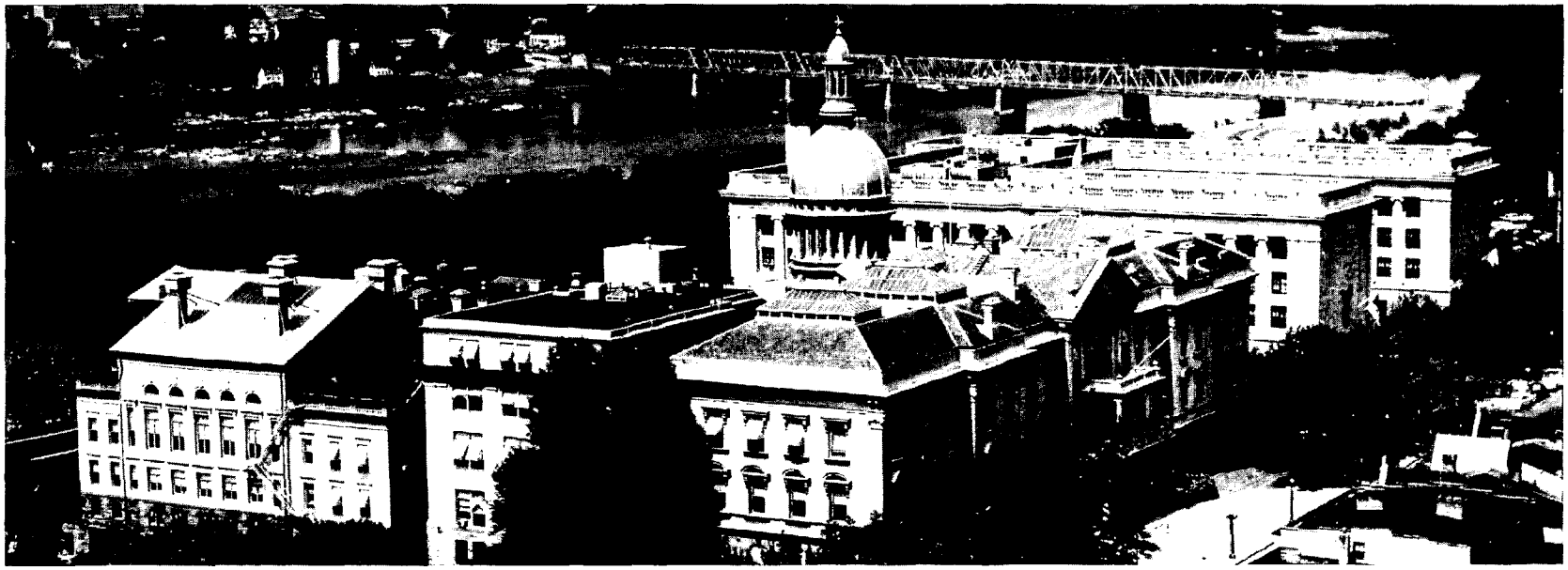
Creation of a State Planning Task Force, Executive Order #40, adopted December 22, 1972.

To further the recognition of the role of the environment in the development of the State and its resources, Governor William T. Cahill has established a State Planning Task Force to guide in coordinating state programs and activities which have an impact on the environment and growth of New Jersey. The Task Force is authorized to prepare and maintain a comprehensive state physical development plan, to advise the Governor on Land use program impacts, to review the relationship between the state capital development program and the physical development program, to coordinate federal planning reviews, to assure integration of state planning policies with interstate planning agency plans, and to provide for coordination and provision of staff services in matters relating to state physical development.

Creation of an Advisory Council on the Future of the State

As the most densely populated state in the nation, New Jersey realizes that it is faced with major decisions regarding its future. Decisions made now concerning the environment and permissible development will shape the State's future for generations to come. These decisions must not be based solely on economics; they should be formulated with specific goals in mind.

The Advisory Council on the Future of the State has been created by Governor Cahill to look at the State's future and make value judgments on the kind and degree of future development in the State. The Council's recommendations on the specific measures necessary to achieve the desired goals will be submitted to the Governor for his consideration.



ACTION PLAN VIII

In the preceding chapters, New Jersey's supply of recreation resources, areas and facilities has been evaluated and related to the present and projected demands for recreation opportunities to derive the State's existing and future needs for recreation. The information gained through this process forms the basis for the Action Program presented in this chapter. The program is designed to be responsive to the needs of the State's citizens and to address the problems hindering provision of adequate outdoor recreation opportunities and a quality living environment.

This chapter includes a presentation of the major recommendations regarding implementation programs; a statement of priorities guiding future actions; a discussion of scheduled federal, interstate, state, county and municipal acquisition and development programs; an analysis of the funding sources for the scheduled action programs; proposals for new funding programs; and a description of favorable pending and proposed legislation relating to outdoor recreation and the environment.

Priorities and Recommendations

The demand for outdoor recreation areas and facilities in New Jersey, as elsewhere, is growing at a fantastic rate. Due in large part to the State's proximity to the New York and Philadelphia metropolitan centers, New Jersey has had almost a 400% increase in population from 1,834,000 in 1900 to 7,192,455 in 1970. Today, New Jersey leads the nation as the most densely populated state with 954 persons per square mile.

This population increase and the growing affluence of the nation's society have combined to impose an almost unbearable pressure on both public and private recreation facilities and open space resources. In New Jersey, for instance, it is estimated that the total outdoor recreation demand on the average weekend day in the peak season will reach nearly 6,533,400 people by 1985 and 9,172,100 by the year 2000. These figures represent a gain of over 1.8 million people and 4.5 million people, respectively, over 1970.

In view of the intense competition for public funds, it appears highly unlikely that New Jersey's total needs for developed recreation facilities and open space land will be met in the immediate future by massive, concurrent development and acquisition programs. More logically, the State's needs will be satisfied through a series of programs requiring a number of years and large sums of money to complete. It follows that, since limited funds prevent fulfillment of all needs at once, programs which meet the State's most pressing needs should receive priority; this requires application of a system which objectively analyzes the merits of projects and permits the ranking of proposals in order of importance. Allocation of funds is then based upon the results of the priority system analysis, with the highest ranking project receiving attention first.

PRIORITIES

STATEWIDE ACQUISITION AND DEVELOPMENT PRIORITIES

As part of the statewide comprehensive planning program, priorities were developed for acquisition and development actions proposed by all jurisdictions from the Federal Government to municipalities and recreation commissions. These priorities are designed to serve as general guidelines in the planning and implementation of recreation and open space projects across the State in order to encourage the proper distribution of funds and the design of projects which will focus on the State's most pressing human needs and environmental concerns as identified in this plan. For each of the two categories, priority considerations were developed along with the priorities to aid in judging the relative merits of proposed projects and insure consistency with the funding and recommendations of this plan.

Open Space Acquisition Priorities

1. Urban open space.
2. Significant natural and cultural resources including outstanding scenic resources, coastal beaches and wetlands, natural areas with rare or unique biotic communities, potential reservoir sites, aquifer recharge areas, flood plains and historic sites.
3. Most desirable recreation development sites.
4. Public access to recreation resources with unrealized potential such as bays, rivers, lakes, and existing publicly owned open space areas.
5. Private inholdings and bufferlands to protect the integrity of existing open space areas.
6. Open space in areas experiencing rapid growth rates.

Acquisition Priority Considerations

1. Degree of threat of disruptive development to the project area.
2. Regional open space and recreation facility needs indentified in this plan.
3. Applying jurisdiction's open space and recreation facility development roles and responsibilities.
4. Project's relationship to state, regional and local land use and open space plans.

Recreation Facility Development Priorities

1. Projects easily accessible to urban populations.
2. Multi-use projects offering a wide variety of facilities.
3. Projects to serve the needs of all groups including the elderly and physically handicapped.
4. Upgrading and reclaiming environmental resources for recreation uses.

Recreation Facility Development Priority Considerations

1. Compatibility of the proposed development to the environmental character of the site.
2. Regional and statewide recreation facility needs.
3. Accessibility of the projects to the groups they are intended to serve.
4. Facility development roles and responsibilities of the jurisdiction proposing the project.
5. Ability of the applying jurisdiction to operate and maintain the facilities and to promote maximum use by the public.
6. Optimum use of the site's natural features.
7. Existence of recreation and open space master plans.
8. Relation of project to other recreation areas offering similar opportunities.

LAND AND WATER CONSERVATION FUND PRIORITY SYSTEM

In the early stages of the Land and Water Conservation Fund Program, it was possible to fund applications on a "first-come, first-serve" basis after project feasibility studies had been completed. The program has gained momentum and a constantly increasing number of requests and applications are received from municipalities and counties. Because of the limited amount of funds available it is impossible to fund every project proposed. Therefore, it becomes desirable to fund first those projects which are more worthwhile than others.

In order to assure the equitable distribution of available funds and the fair evaluation of each project, a priority system was devised in 1968 using demand and needs data from the 1966 New Jersey Comprehensive Outdoor Recreation Plan. In this system, points were assigned to several pertinent factors based on the importance of each factor as compared with the other factors.

Each project was evaluated in terms of these factors and a "score" for that project was determined and was compared to scores given other projects in the same manner. An attempt was made to determine in the most objective manner possible the relative merits of each proposed project.

Based on the use of the priority system over the past four years and the delineation of statewide priorities, revisions have been made in some of the original factors, some of the points were changed and some new factors added. The new priority system draws upon the plan's updated supply and demand analysis, the discussion of roles and responsibilities and information compiled by the Urban Needs Study.

Land and Water Conservation Fund Priority System

No.	Factor Description	Max. No. of Points
1.	1985 Activity Need by Region: the extent to which the proposed project provides the type of activities most needed by the region in which the project is located.	15
2.	1985 Activity Need Statewide: the extent to which the proposed project provides the type of activities most needed to meet the need of the State as a whole for that activity.	15
3.	1985 Activity Need by Percent: the extent to which the proposed project provides the type of activities most needed in terms of percent of need for those activities within the region.	4
4.	Service Area and Accessibility: (a) the extent to which the proposed project falls within the particular jurisdiction's service area; and (b) the extent to which the proposed project is accessible by public or private transportation to residents of the intended service area.	8 10
5.	Special and Innovative Facilities: facilities not included in the first three factors are evaluated here.	10
6.	Roles and Responsibilities: (a) the extent to which the applying jurisdiction is proposing a project which is recommended for that level of government under the roles and responsibilities discussion of this Plan; and (b) the extent to which the applying jurisdiction's responsibilities for each activity needs within the region are being met by the proposed project.	30 15
7.	Rate of Growth: if the applying jurisdiction has a high population growth rate, it will be given special consideration.	12
8.	Site Preparation and Landscaping Costs: the portion of the project's total cost devoted to site preparation and landscaping will be determined with a high rating given to projects with the lowest site costs.	8
9.	Type of Facilities Provided: the extent to which the proposed project provides basic facilities as opposed to elaborate, specialized facilities.	5
10.	Age Groups Provided For: the extent to which the proposed project provides activities for one or more age groups with highest points going to the project providing facilities for all age groups.	5
11.	Needs of the Underprivileged: the extent to which the proposed project provides for the special needs of the elderly, the economically disadvantaged and the mentally or physically handicapped.	15
12.	Additional Features Provided: the extent to which the proposed project provides special features, such as drinking fountains, etc.	10
13.	Urban Needs: the applying jurisdiction is evaluated to determine (a) gross population, (b) population density, (c) regional percent urbanization, (d) the need for certain types of urban facilities based on the Urban Needs Study, and (e) percent urbanization within the intended service area.	10,10,15 15 10

RECOMMENDATIONS

GENERAL

- In general, all levels of government should emphasize open space acquisition to preserve recreation resources that would otherwise be lost for future public use while continuing to develop recreation areas in an orderly manner.

- Each successive level of government should retain a greater percentage of open space holdings in an undeveloped state for conservation purposes.
- Each level of government, consistent with its assigned responsibilities, should provide the recreation facilities required to accommodate the unmet recreation demands identified in the Needs Chapter.
- Priority should be given to park and recreation areas that will be easily accessible to the people who are expected to use the areas.
- All levels of government should expand existing funding programs for recreation development and open space acquisition, and establish new funding sources where needed.
- In keeping with the ecological balance of areas, expand existing and establish new nature interpretive facilities and programs.
- In general, each successive level of government should assume a greater responsibility for providing larger areas of open space.

FEDERAL GOVERNMENT

- Continue and expand matching grant programs providing funds to State and local governments for acquisition and development of open space and recreation areas while providing a sufficient level of revenue sharing funding to permit the State and local governments to allocate a portion of the funds to recreational uses, especially maintenance and operation, along with the other permitted uses.
- Continue and expand funding programs for the planning and construction of water pollution abatement facilities.
- Integrate recreation planning as a significant part of interstate and regional planning.
- Expand responsibilities to include providing sizable recreation areas in close proximity to large urban complexes of high population density.
- Continue establishing and maintaining a recreational open space system embracing areas and sites of national interest and concern.
- Appropriate funds for the implementation of the Federal Coastal Zone Land Management Act which provides federal assistance to states in developing and maintaining land and water use programs for the coastal zone.
- Develop the Delaware Water Gap National Recreation Area to accommodate a maximum annual rate of visitation of four million and restore provisions for family campground development to the recreation plan.
- Expedite the development of the Gateway National Recreation Area along the lines authorized by Congress.
- Endeavor to make available under the Surplus Property Program federal properties more meaningful in terms of potential for park and recreation use, especially in urban areas, in line with the Legacy of Parks Program.
- Continue to make available for general public hunting use under sound wildlife management practices defined areas within the extensive federal military holdings and expand the program to include other federal military properties where the potential exists.
- Open federal properties, where permissible, to public fishing use.
- Increase the funding level of the Recreation Support Program and revise the scope of the program to include smaller urban centers in need.
- Provide additional funds for the Youth Recreation Sports Program so that more institutions of higher education may be stimulated to operate recreation programs using college facilities for disadvantaged youth and the programs can be extended to year-round operations.
- Passage of the proposal that would designate a 4,250 acre section of the Brigantine National Wildlife Refuge as a component of the National Wilderness Preservation System.

STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION

- Actively promote and support proposed legislation and programs that would have favorable environmental consequences such as state, regional, and local land use regulations and air and water anti-pollution legislation.

- Establish new sources of funds for local and state open space acquisition and recreation facility development.
- Continue to integrate recreation planning as part of total state land use planning.
- Provide recreation programs and areas which serve all segments of the State's population including the economically and physically handicapped, and encourage other levels of government to provide similar programs and facilities.
- Establish state park and recreation areas within or in close proximity to urban areas.
- Protect the ecological balance along the coastal zones through effective implementation of the Wetlands Act, Clean Ocean Act, and related programs, and rigorous enforcement of the State's riparian laws and regulations.
- Actively pursue a program designed to utilize the recreational potential of the State's inland and coastal surface water resources including cooperation with counties and municipalities to provide local opportunities.
- Continue providing the administrative framework for water quality management programs, funding for the construction of new water pollution abatement facilities and the upgrading of existing facilities, and enforcing the State Water Pollution statutes.
- Step up programs to acquire the remaining rapidly disappearing natural areas of significance.
- Protect significant natural and historic features by acquisition, legislation or other effective methods.
- Establish a state system of scenic and recreational rivers to protect and preserve the remaining unspoiled segments of rivers and streams in the State.
- Establish a statewide system of interconnecting trails.
- Continue to provide outdoor recreation facilities and open space areas of broad popular appeal with user fees within the financial capability of users.
- Conduct research on various aspects of outdoor recreation pertaining to New Jersey and make the results of such investigations available to public and private agencies.
- Continue to develop multiple use reservoir areas such as Spruce Run, Round Valley, Six Mile Run, Allamuchy, and Allaire.
- Administer significant areas of open space relative to conservation, water management, and outdoor recreation activities which require extensive lands.
- Support legislation that would relieve the property tax burden from non-profit conservation and environmental groups holding open space for preservation purposes.
- Encourage the use of innovative techniques in urban areas to meet recreation space, facility, and program needs.
- Encourage the Department of Transportation to consider the recreation needs of urban dwellers and the location of the State's recreation facilities in mass transit planning.
- Assist local governments to preserve and protect existing and potential open space from despoliation resulting from incompatible development.
- Provide technical assistance to the private sector on habitat improvement programs.
- Encourage utilization of available land use techniques such as planned unit development, cluster development, and new community development in an effort to retain significant open space.
- Encourage public and private agencies to establish new and expand existing nature interpretive facilities and programs and assist these agencies by providing technical assistance.
- Encourage other levels of government and the private sector to meet their recreation facility and open space responsibilities.
- Work with privately and publicly owned watersheds to encourage multiple use of reservoirs and adjoining lands for public recreational purposes.
- Work with utility companies to develop rights-of-way for hiking, horseback riding, and other recreation pursuits.
- Continue to enter into long-term lease agreements of state lands for development and operation by the private sector of specialized facilities beyond the financial capabilities of the

State to provide, similar to the ones held by Great Gorge and Vernon Valley ski resorts.

- Increase the supply of fish and wildlife through expanded rearing, stocking, and habitat improvement programs.
- Cooperate with the Department of Transportation in a study of the feasibility of purchasing wider rights-of-way for new highway construction to enable development of linear parks and trails with picnicking and overnight transient facilities.
- Cooperate with the Department of Transportation in the study of existing highway rights-of-way for linear park and trail development.
- Encourage the Department of Transportation to incorporate walkways and parking areas for anglers in new bridge construction.
- Construct the planned trout hatchery at Pequest.

COUNTY GOVERNMENT

- Acquire, develop, maintain, and operate recreation areas to serve the outdoor recreation needs of county residents.
- Use a portion of the federal revenue sharing funds to augment the recreation budget for open space acquisition, facility development and maintenance and operation programs.
- Provide intensely developed recreation facilities to supplement municipal park systems and more extensive facilities such as golf courses and hiking trails to serve on an intercommunity basis.
- Cooperate with the State to develop the recreation potential of the water bodies in the county.

MUNICIPAL GOVERNMENT

- Provide and administer intensely developed, user-oriented facilities easily accessible to the local population.
- Use a portion of the federal revenue sharing funds to augment the recreation budget for open space acquisition, facility development and maintenance and operation programs.
- Recognize the importance of recreation programming in meeting community recreation needs and develop programs which maximize the use of available recreation resources.
- Identify and use all available recreation resources including lands and buildings under the control of local boards of education.
- Provide for citizen participation in the planning for recreation facilities.
- Adhere to sound land use principles which recognize the incompatibility of certain uses and the necessity of retaining natural elements for a quality living environment.
- Investigate the feasibility of using innovative techniques to meet urban recreation space, facility and program needs.
- Investigate innovative land use techniques such as planned unit development, new communities and cluster development and the methods established by state legislation and legal precedent to control development and retain open space.
- Recognize the valuable contributions of privately owned recreation facilities in terms of open space and outdoor recreation and zone such properties accordingly, to avoid inadvertently driving the establishments out of business through high property taxes.
- Cooperate with the State and counties to develop the recreational potential of water bodies.

PRIVATE SECTOR

- Non-profit conservation and environmental groups should continue to acquire open space for preservation purposes, especially areas of ecological significance.
- Farmers and other private large tract owners, in keeping with ecological limitations to carrying capacity, should consider opening their lands to general public recreational use in view of the state legislation relieving the private owner from liability except in cases of gross negligence or the charging of fees for use.
- Private commercial enterprises should develop day use and overnight recreation facilities such as lake swimming and campgrounds where favorable market conditions exist.

- Non-profit conservation and environmental groups should develop nature education and research centers to utilize the potential of their holdings.
- Upon relief of the property tax burden, the private commercial sector should undertake development of extensive recreation facilities such as golf courses and campgrounds.

Scheduled Program of Action 1971-1977

The needs for outdoor recreation opportunities in the State of New Jersey are both great and varied. In order to make up for the deficiencies in the present recreation supply and to provide for the ever growing needs of the State, an orderly program for both the acquisition of land and development of facilities must be continued by a coordinated effort on all levels of government. The scheduled program of action indicates what progress can be made in meeting the State's needs over the next seven year period. The chief determent in the scheduled program of action will be the availability of capital funds. Further constraints within the action period are both time limitations and manpower capabilities.

LAND ACQUISITION PROGRAM

The basic component and common denominator of all recreational activity is space, either land or water. The total State need in terms of land to be acquired by all jurisdictions at the year 1985 is slightly over 300,000 acres. The projected acquisition program in the seven year action period provides for the acquisition of 129,705 acres. (See Table 1.)

Despite the accelerated land acquisition program as the result of the $80 million Green Acres Bond Issue of 1971, it is evident that available funds will not be sufficient to completely fulfill the growing need. Therefore, selectivity in identifying high priority acquisition is essential. Each level of government will carefully analyze its land needs and make acquisition decisions based on the suitability of the site for the defined need and the accessibility of the site to the potential users.

Federal — During the seven year period from 1971-77, the prime acquisition thrust will be at the Delaware Water Gap National Recreation Area in the Northwest Region where 30,290 acres of land will be acquired. The North Central Region will benefit from the acquisition of 412 acres at the Great Swamp National Wildlife Refuge. In the North Shore Region, the Barnegat National Wildlife Refuge will be enlarged by 1,849 acres and the 1,700 acre Sandy Hook unit of the Gateway National Recreation Area will be created. It should be noted that federal programs do not attempt to coordinate with the regional recreation needs of the State; the selection of sites for National Recreation Areas, National Historic Parks, and National Wildlife Refuges are based on the outstanding qualities significant enough to warrant national consideration.

Sandy Hook

TABLE 1: SCHEDULED LAND ACQUISITION PROGRAM 1971-1977 (acres)

Region	Jurisdiction				
	Municipal	County	State	Federal	Total
Northwest	1,283	1,413	16,424	30,800	49,920
North Central	2,992	115	7,552	192	10,851
Northeast	696	1,952	714		3,362
Central Corridor	1,755	1,273	4,754		7,782
North Shore	2,474	1,537	8,618	4,832	16,919
Southwest	723	0	8,143		8,866
South Shore	838	80	22,821	582	24,321
Delaware Bay	113	871	3,793	2,365	7,142
State Totals	10,874	7,241	72,819	38,771	129,705

State — Although the State will expend $40 million on land acquisition as the result of the second Green Acres Bond Issue, the total needs for land cannot be met with available state and federal funding. Therefore land acquisition priorities were developed to assure the best possible expenditure of available funds in meeting the State's recreation and open space needs. The following priorities were applied to the State's proposed acquisition program for the action period. The order of listing does not necessarily reflect the degree of importance.

- Areas possessing significant natural and cultural resources including outstanding scenic resources, coastal beaches and wetlands, natural areas with rare or unique biotic communities, potential reservoir sites, aquifer recharge areas, flood plains and historic sites;
- Urban open space;
- Most desirable recreation development sites reflecting physical suitability and public accessibility;
- Public access to recreation resources with unrealized potential such as bays, rivers, lakes, and existing publicly owned open space areas;
- Private inholdings and bufferlands to protect the integrity of existing open space areas;
- Open space in areas experiencing rapid growth rate;
- Degree of threat of disruptive development to the proposed project area;
- Regional open space and recreation facility needs;
- Project's suitability based on agency's roles and responsibilities for acquisition and development;
- Project's relationship to state, regional, and local land use and open space plans.

After careful consideration of the above priority factors, the State is currently proceeding on an implementation program to acquire the highest priority lands necessary to fulfill the established recreation needs. At the end of the action period,* the State will have acquired approximately 73,000 acres. The following is a listing of the state projects approved under the Green Acres Program as of January 1, 1973:

Project Name*	Region	Assigned Jurisdiction	Acres
Spruce Run/Clinton	Northwest	Parks & Forestry	226
Pitstown/Landsdowne	Northwest	Fish & Game	45
Delaware River Access Sites	Northwest & Central Corridor	P&F & F&G	315
Allamuchy Mt.	Northwest	P&F	3678
Pequest	Northwest	F&G	170
Wawayanda	Northwest & North Central	P&F	4186
Ringwood additions	North Central	P&F	463
Black River	North Central	F&G	282
Assunpink	Central Corridor	F&G	1400
Princeton Battlefield	Central Corridor	P&F	77
Washington Crossing	Central Corridor	P&F	25
Manasquan River Area	North Shore	P&F	1900
Monmouth additions	North Shore	P&F	170
Cape May Wetlands	South Shore	P&F & F&G	5051
Rancocas additions	Southwest	P&F	239
Sims	Southwest	P&F	3000
Delaware Bay Wetlands	Delaware Bay	F&G	2283

During the latter part of the action period the State will identify additional acquisition projects meeting the priority

* Appendix Q map entitled, "Major Public Open Space and Recreation Areas in New Jersey" shows the locations of these state acquisition projects.

Allamuchy Mountain State Park

considerations necessary for approval. It is not appropriate at this point in time to identify specific sites proposed for future acquisition. Many variable factors and changing conditions must be thoroughly investigated prior to determining project feasibility. Therefore, the programmed effort by the State in future land acquisition will reflect regional recreation needs tempered to priority considerations and economic feasibility.

Municipalities and Counties — It is projected that local government in New Jersey will acquire approximately 18,000 acres of land for open space and recreational purposes during the action period. The impetus for land acquisition by municipalities and counties is based on the availability of $40 million from the Local Assistance Program under the second Green Acres Bond Issue. An additional incentive for land acquisition during this period is the possibility of receiving complimentary federal assistance from BOR or HUD so as to account for 100% funding. The donation of land for open space and recreation is also becoming more common and local governments are actively pursuing this avenue.

Within New Jersey, each municipality and county has many and varied requirements for recreational land. Therefore, the plan of implementation for local acquisition cannot be geared to the identification of individual sites during the seven year program. However, the following considerations must be recognized, together with the aforementioned priorities, in the evaluation of each acquisition so as to reflect the degree of fulfillment of the State's acreage and facility needs.

- the degree to which the acquisition will meet established local recreation needs;
- conformance of the acquisition to the recreational needs of the region;
- the degree to which the acquisition satisfies acreage need based on established standards;
- the acquisition's adherence to the accepted level of responsibility by the governmental agency;
- physical factors affecting proposed use of the acquisition;
- accessibility of the acquisition to the intended users.

CAPITAL IMPROVEMENTS PROGRAM

Federal — Within the seven year action period, the Federal Government is embarking on two major projects within the State: the Gateway National Recreation Area and the Delaware Water Gap National Recreation Area (see Table 2). As the acquisition program at the Delaware Water Gap NRA progresses, the Park Service will begin to prepare the area for full development. Much of the capital development costs projected for the action period will be used for park support facilities. However, two group camps and an environmental study center are scheduled for completion by 1977. These facilities will help meet the demand in the State's Northwest Region.

Since there is very little acquisition on the New Jersey section of the Gateway National Recreation Area, the major emphasis during the action period will be on site planning and beach restoration at Sandy Hook in the North Shore Region.

TABLE 2: FEDERAL AND INTERSTATE RECREATION FACILITIES SCHEDULED FOR DEVELOPMENT 1971-1977

	FEDERAL					INTERSTATE
	Delaware Water Gap National Recreation Area	Great Swamp National Wildlife Refuge	Morristown National Historic Park	Edison National Historic Site	Brigantine National Wildlife Refuge	Palisades Interstate Park
Region	Northwest	North Central	North Central	Northeast	South Shore	Northeast
Swimming	X					
Boating Access	X				X	
Fishing Access	X					
Outdoor Games & Sports Facilities	X					5
Bicycle Trails						2 mi.
Group Camping Areas	X					
Picnic Areas	X					6
Hiking Trails	X		X			
Horseback Riding Trails	X					
Nature Trails		12 mi.			X	7.5 mi.
Nature Education Centers		X			X	
Nature Interpretive Facilities		X				
Snow Skiing Slopes						X
Sledding Slopes						X
Visitor Centers	X			X		X

The capital improvements scheduled for the Morristown National Historic Park in the North Central Region are comprised of both rehabilitation of existing facilities and the enlargement of visitor support facilities.

Both the Brigantine National Wildlife Refuge in the South Shore Region and the Great Swamp National Wildlife Refuge in the North Central Region will provide new environmental education centers and more nature trails within the seven year action period.

The Edison National Historic Site in the Northeast Region will expend capital funds for rehabilitation of structures and the improvement of visitor support facilities.

State — Major emphasis during the seven year action period will be placed on the completion of three major day use recreation areas in the Northwest Region (see Table 3). The state Division of Parks and Forestry has placed priority on the completion of Spruce Run Recreation Area and Round Valley Recreation Area in Hunterdon County and Wawayanda State Park day use area in Sussex County. Each of the recreation areas when completed will provide varied recreational opportunities for large numbers of people from both within the region and from neighboring regions within North Jersey.

Round Valley Recreation Area — During the early portion of

TABLE 3: STATE RECREATION FACILITIES SCHEDULED FOR DEVELOPMENT / 1971-1977

Area	Region	Swimming Beaches (Feet of Shoreline)	Ramps	Boating Rental Liveries	Marinas	Fishing Access Points	Picnicking Tables	Camping Family Sites	Hiking Trails	Horseback Riding Trails	Nature Walking Trails	Outdoor Games & Sports Playfields	Major Support Facilities
Round Valley Recreation Area	Northwest	1000	2	X	X	X	500	116	9	9	X	2	X
Spruce Run Recreation Area	Northwest	1000		X		X	500				X	3	X
Wawayanda State Park	Northwest	1250	1	X		X	X		X		X	4	X

Spruce Run Recreation Area

the action period, the State will complete the construction of 116 wilderness camping sites around the bowl of the Round Valley Reservoir. The sites will only be accessible by small boat or the utilization of over 9 miles of new hiking and bridle trails. Development of the day use area is scheduled for the latter portion of the action period. Initial development of the day use area took place in 1967 and 1968 when a dike was built to create a protected recreational water level in a small cove of the Reservoir. A sand beach with a capacity of approximately 2000 bathers was built at the same time. In order to complete the day use facility, development now scheduled by the Division of Parks and Forestry includes a major access road to the day use area, internal entrance roads, a control station, a bathhouse, parking, game areas, picnic areas, comfort facilities and a maintenance/administration center. The Division of Fish, Game and Shellfisheries will complete a boat launching facility adjacent to the day use area. The primary function of the boat ramps will be for fishing access to the Reservoir and for boat access to the Wilderness Camping Area. By the end of the action period, a major boating facility will be constructed. Provisions for the facility will include a boat rental livery and individual boat moorings.

Spruce Run Recreation Area—A major beach facility with a capacity of over 2000 bathers is scheduled to be completed in the early portion of the action period. The development in support of the beach will include a modular bathhouse complex, parking, entrance drive and control station. Also included in first phase development is a fishing pier specifically designed to accommodate the handicapped. Phase two development is scheduled for the latter part of the action period. This phase will consist of several large picnic areas (total capacity of 500 tables) and a livery area for the rental of approximately 100 small rowboats and canoes.

Wawayanda State Park—The completion of the day use area at Wawayanda in upper Sussex County is scheduled for the end of the action period. Development will include the completion of the beach with a capacity of over 2500 bathers, a bathhouse, several picnic areas and open playfields, the entrance drive, a park control station and parking. A boathouse for the rental of rowboats and a boat launching ramp will also be included in the development.

Sanitary Facilities Program—In an effort to upgrade the sanitary facilities at most state parks and forests, a four year, four phase program will be initiated and completed within the action period. Although the conversion to flush toilets and the construction of new comfort stations and laundry-washhouse buildings does not directly make up the deficiencies in recreation supply, these added facilities do extend the use of existing recreation areas and add to the enjoyment of the recreational experience. Development is programmed in every region with the exception of the Northeast.

Bicentennial Celebration—The State of New Jersey will commemorate the 200th anniversary of our country with appropriate recreation development at Batsto in the South Shore Region, and Monmouth Battlefield and Allaire Village in the North Shore Region and other historic sites. Initial development at each site is programmed to be completed and open to the public by 1976.

Interstate—The Palisades Interstate Park Commission proposes to develop a 15 acre site just south of the George Washington Bridge into a historic park to commemorate the Bicen-

tennial. The Fort Lee Historic Park will include a visitor information center, reconstruction of original fortifications including the gun batteries and magazines, picnic areas, open playfields and walking trails.

Municipalities and Counties—It is virtually impossible to accurately estimate the seven year capital development program for the 567 municipalities and 21 counties in the State of New Jersey. The very nature of general purpose local government, where capital decisions generally rest with elected officials responsive to the needs and desires of interested groups, dictate short range capital planning as a pragmatic approach to providing municipal services and facilities. Therefore, the implementation program for local development cannot be aimed at the identification of specific projects. Rather, the program is presented to pinpoint the types of recreational opportunities most needed to fulfill the regional demands. The implementation program is further broken down to assign specific responsibilities to the inner cities, to the suburban communities, to the rural communities, to those counties with established park systems, and to those emerging counties.

Inner Cities—Generally the recreational needs of New Jersey's cities are similar and cannot be differentiated by planning regions. The lack of mobility and economic latitude demand that recreation services be placed close to the users. The greatest municipal need of the cities is for outdoor games and sports areas. Because of the demands on city land, most urban projects must utilize relatively small spaces and be oriented to the neighborhood. Urban projects will be typified by tot lots, playgrounds, game courts, senior citizens passive areas or combinations of the above. If open space permits, ballfields and play areas will be provided. Prime consideration will be given those projects that provide innovative uses of urban open space.

Most cities have a great need for facilities to accommodate swimming. This is especially true in the urban Northeast Region. The need will be met by the provision of neighborhood swimming pools as a priority consideration.

Suburban Communities—Within every planning region there must be provided additional opportunities for outdoor games and sports. Municipal governments in suburban areas have greater flexibility in providing recreational services by virtue of a better economic base and, generally, the availability of open space suitable for recreation. Capital development projects will include both neighborhood parks and community wide parks. Facilities typically found in suburban recreation development include ballfields, basketball, tennis and other types of game courts, passive areas, and play equipment. Provisions for ice skating on flooded game courts or a small pond and limited picnic areas are also typical in suburban parks. Additional local emphasis will be placed on meeting the demand for nature interpretation by providing areas and facilities specifically reserved from active recreation for use in nature study.

Swimming needs in suburban communities can best be met by providing community swimming pools. Greatest emphasis in swimming should be placed on communities in the Northeast and Central Corridor regions.

Rural Communities—In many instances these areas will be taking initial steps in providing municipal recreation opportunities during the action period. Again, outdoor games and sports areas will receive primary consideration. The rural community needs will be manifested in basic facilities, such as baseball or football fields and game courts. Priority will be given to those communities experiencing rapid growth.

Counties—The role of county government in providing outdoor recreational opportunities in New Jersey is most important. Generally, those counties within the Northeast, North Central, Central Corridor and North Shore regions have established county park systems and on-going recreation programs. It is generally accepted that these county park commissions have the responsibility of providing regional parks and specialized facilities which cannot for financial reasons be built, operated or maintained by municipalities. Established county park commissions will fulfill a portion of the regional demand for outdoor games and sports. County parks will bear most of the burden for providing specialized facilities such as golf courses and major tennis centers. Countywide needs for ballfields and athletic complexes will also be met by county park commissions.

Most artificial ice rinks constructed during the action period will fall within the responsibility of established county park commissions. To a lesser degree, provisions for ice skating on ponds and lakes will be provided by counties.

In helping to meet the needs of each region, the counties will provide a substantial portion of the facilities for picnicking, nature interpretation, trails, and group camping. Counties to a limited degree will provide family camping and snow skiing as natural conditions permit.

Most of the counties in the Northwest, Southwest, South Shore, and Delaware Bay regions will be considering for the first time the provision of recreational services as a function of county government. Therefore a land acquisition program will receive primary consideration for these counties during the action period. Once the acquisition program has been established, limited development will follow on newly acquired lands. Provisions for outdoor games and sports, picnicking, fishing, and nature interpretation will have priority as initial development.

Certain data is available on projects funded through the Land and Water Conservation Fund Program and scheduled to be completed during the action period. The compilation of this data is incorporated in Table 4, "County Facilities" and Table 5, "Municipal Facilities". The recreation facilities to be developed are reflective of types of projects currently being considered by local government in New Jersey. However, since the Land and Water Conservation Fund Program cannot attempt to fund all local development, the data should not be interpreted as a comprehensive schedule of all development occurring at these levels.

TABLE 4: COUNTY RECREATION FACILITIES SCHEDULED FOR DEVELOPMENT / 1971-1977

Activity	Facility	North-west	North Central	North-east	Central Corridor	North Shore	South-west	South Shore	Delaware Bay	Totals
Swimming	Pools			1			5			6
	Beaches (Acres)		0.1		1					1.1
Boating	Ramps					1				1
Camping	Family (Sites)		45							45
Hiking	Trails (Miles)		2	6		3.5				11.5
Bicycling	Trails (Miles)						2.5			2.5
Horseback Riding	Trails (Miles)		1							1
Nature Walking	Trails (Miles)		1.5	4.7	5	3.5				14.7
Picnicking	Tables		152	375	8	165	24			724
Ice Skating	Natural Areas (Acres)			0.5	1.5	40				42
Snow Skiing	Areas		1	1						2
Outdoor Games and Sports	Playgrounds		1	2		1				4
	Baseball Fields		3	5	4					12
	Basketball Courts				8					8
	Football/Soccer Fields			3	2					5
	Shuffleboard Courts					4				4
	Tennis Courts			23	10	9				42

TABLE 5: MUNICIPAL RECREATION FACILITIES SCHEDULED FOR DEVELOPMENT / 1971-1977

Activity	Facility	North-west	North Central	North-east	Central Corridor	North Shore	South-west	South Shore	Delaware Bay	Totals
Swimming	Pools			7		1		1	3	12
	Shoreline (Feet)							250		250
Boating	Ramps					1		1		2
Hiking	Trails (Miles)					.2	1.8			2.0
Bicycling	Trails (Miles)						.8	1.3		2.1
Nature Walking	Trails (Miles)			1.1			.3	.5		1.9
Picnicking	Tables			62		72	47			181
Ice Skating	Natural Areas (Acres)		1.5	.5			.5	.5		3.0
	Artificial Areas (Acres)							.5		.5
Outdoor Games and Sports	Playgrounds		6	19	3	8	9	4		49
	Badminton Courts			2						2
	Baseball Fields	1	5	11	7	9	19			52
	Basketball Courts		2	17	4	13	5			41
	Football/Soccer Fields			7		3	6			16
	Handball Courts		3	8	4	8				23
	Horseshoe Courts				4					4
	Multi-purpose Courts		1	1			2	1		5
	Open Playfields			3			1			4
	Running Tracks (¼ mi.			2						2
	Shuffleboard Courts			2						2
	Softball Fields		1	3			2			6
	Tennis Courts		3	23	30	24	14			94

Funding

Funds to finance the $244,364,000 cost of the acquisition and development programs scheduled for completion between 1971 and 1977 will be derived from municipal, county, state, interstate, and federal appropriations and bond issues. The state level will be the single largest source of funds, $122,731,900 or 50.2% of the total; this is due primarily to the $104,292,400 made available through three bond issues for state and local open space and reservoir acquisition. The Federal Government through its matching fund programs (Land and Water Conservation Fund and the Department of Housing and Urban Development's Open Space Program) and its own acquisition program follows the State as a source of funds by providing $63,029,900. To finance local acquisition and development programs, municipalities and counties will spend $51,956,900 obtained through municipal and county bond issues and appropriations to match the state and federal funding programs. Funds to support the $6,645,000 development program at the Interstate level will be derived from a variety of sources including appropriations of the member states. (Refer to Tables 6 and 7.)

SOURCES OF FUNDS FOR SCHEDULED ACQUISITION AND DEVELOPMENT PROGRAMS 1971-1977

JURISDICTIONAL ANALYSIS

Municipal Level—The estimated cost of the scheduled municipal acquisition and development programs (excluding HUD funded projects) amounts to $62,936,200. Municipal bonds and appropriations will finance nearly 50% ($31,353,100) of the program costs. These municipal funds will be matched by state funds under the Green Acres Programs which will provide almost 45% or $28,140,700, and the Federal Land and Water Conservation Fund (L&WCF) which will provide over 5% or $3,442,400.

TABLE 6: SOURCES OF FUNDS FOR SCHEDULED ACQUISITION PROGRAM 1971-1977

Region	Municipal[1] Bonds or Appropriations	County[1] Bonds or Appropriations	1961 Green Acres Bond Issue	State 1971 Green Acres Bond Issue	Water Resources Fund	Federal Assistance L&WCF*	HUD* (State)	NPS*	Acquisition[2]	Total
Northwest	$ 1,188,150	$ 776,000	$ 302,700	$14,585,950	$ 2,500,000	$ 7,047,400	$ 140,000		$3,000,000	$ 29,540,200
North Central	4,686,100	145,200	665,900	9,391,200	5,018,300	1,588,000	400,000		681,000	22,575,700
Northeast	8,091,900	5,336,250	1,196,700	16,260,550		800,000				31,685,400
Central Corridor	3,912,300	867,700	632,800	5,319,900	12,058,100	70,000	2,635,000	$75,000		25,570,800
North Shore	7,581,550	2,371,300	806,000	18,687,050	3,299,500	150,000	175,000		1,485,000	34,555,400
Southwest	1,170,100		271,200	3,679,000		895,000	1,100,000			7,115,300
South Shore	1,184,200	250,000	159,200	8,395,400		1,462,500			244,000	11,695,300
Delaware Bay	211,450	175,000	60,500	1,002,450		200,000			2,155,000	3,804,400
State Totals	$28,025,750	$9,921,450	$4,095,000	$77,321,500	$22,875,900	$12,212,900	$4,450,000	$75,000	$7,565,000	$168,542,500

*L&WCF – Land and Water Conservation Fund
HUD – Department of Housing and Urban Development (State acquisition only). Local program, unassignable to regions, amounted to $6,462,400.
NPS – National Park Service (State acquisition only).

Local HUD Program	$ 12,924,800
Total Acquisition Program	$179,467,300

[1]Funds used to match the State Green Acres Programs. Does not include the local funds used to match HUD monies, $6,462,400.
[2]Does not include the acquisition costs of the Delaware Water Gap National Recreation Area.

TABLE 7: SOURCES OF FUNDS FOR SCHEDULED DEVELOPMENT PROGRAMS 1971-1977

	Municipal[1] Bonds or Appropriations	County[1] Bonds or Appropriations	State Appropriations	Interstate Appropriations	Federal[2] Assistance L&WCF	Development	Total	Total
Northwest	$ 1,000	$	$12,814,300		$12,392,800	$ 2,812,000	$15,204,800	$28,020,100
North Central	184,750	435,750	666,800		1,270,300	5,330,200	6,600,500	7,887,800
Northeast	1,471,650	937,000	75,000	$6,645,300	2,406,650	2,087,000	4,495,650	13,624,600
Central Corridor	422,000	684,700	270,600		1,252,900		1,252,900	2,630,200
North Shore	432,200	386,750	2,456,100		965,450		965,450	4,240,500
Southwest	481,850	42,500	225,600		749,950		749,950	1,499,900
South Shore	238,450		1,683,200		568,350	350,400	918,750	2,840,400
Delaware Bay	95,500		157,900		253,400		253,400	506,800
Statewide			90,000		90,000		90,000	180,000
State Totals	$3,327,400	$2,486,700	$18,439,500	$6,645,500	$19,951,800	$10,579,600	$30,531,400	$61,430,300

[1]Funds used to match the Land and Water Conservation Fund Program Does not include the local funds used to match the Department of Housing and Urban Development's monies available under its open space program, $1,733,200

[2]Local HUD funds ($1,733,200) were not assignable to regions and therefore were not included.

Local HUD Program	$ 3,466,400
Total Development Program	$64,896,700

TABLE 8: MUNICIPAL SCHEDULED ACQUISITION PROGRAM* 1971-1977 (cost)

Region	1971	1972	1973	1974	1975	1976	1977	Total
Northwest			$ 90,000	$ 842,000	$ 896,800	$ 637,500		$ 2,466,300
North Central	$ 17,500	$ 15,000	192,200	3,086,000	3,140,500	2,921,000		9,372,200
Northeast	37,000	182,000	3,500,100	5,339,000	2,836,800	4,288,900		16,183,800
Central Corridor	442,800	638,900	1,981,000	1,028,000	392,400	3,481,400		7,964,500
North Shore	65,000	171,000	8,064,500	1,116,800	2,802,400	2,943,400		15,163,100
Southwest	77,000	195,200	315,200	337,500	1,415,300			2,340,200
South Shore		92,800		197,000	1,650,000	228,600		2,368,400
Delaware Bay				76,900	61,000	285,000		422,900
State Totals	$639,300	$1,294,900	$14,143,000	$12,023,200	$13,395,200	$14,785,800		$56,281,400

*Does not include the open space matching fund program administered by the Department of Housing and Urban Development. The available information did not permit the assignment of funds to individual regions or to specific levels of government. Collectively, municipalities and counties received $6,462,400 for open space acquisition in 1971 and 1972.

Municipal recreation development presently qualifying for L&WCF assistance will require expenditures totaling $6,654,800 (see Table 8). Municipalities will finance 50% of the cost ($3,327,400) and the Land and Water Conservation Fund will provide the remaining $3,327,400.

Acquisition projects estimated to cost $56,281,400 have been scheduled by municipalities during the period between 1971 and 1977 (see Table 9). Municipalities will provide just under one half of the funds ($28,025,700), the State 50% ($28,140,700), and the L&WCF less than 1% ($115,000).

TABLE 9: MUNICIPAL SCHEDULED DEVELOPMENT PROGRAM* 1971-1977 (cost)

	1971	1972	1973	1974	1975	1976[1]	1977[1]	Total
Northwest		$ 2,000						$ 2,000
North Central		188,500	$ 14,000	$ 167,000				369,500
Northeast	$155,000	530,000	635,200	1,623,100				2,943,300
Central Corridor	33,000	86,000	507,500	53,000	$164,500			844,000
North Shore		39,000	386,800	438,600				864,400
Southwest		12,700	246,400	704,600				963,700
South Shore			350,700	126,200				476,900
Delaware Bay			191,000					191,000
State Totals	$188,000	$858,200	$2,331,600	$3,112,500	$164,500			$6,654,800

*Does not include the open space matching fund program administered by the Department of Housing and Urban Development. The available information did not permit the assignment of funds to individual regions or to specific levels of government. Collectively, the municipalities and counties received $1,733,200 for recreation development in 1971 and 1972

[1]Land and Water Conservation Fund monies have not been committed for projects scheduled to be completed in these years.

TABLE 10: COUNTY SCHEDULED ACQUISITION PROGRAM* 1971-1977 (cost)

Region	1971	1972	1973	1974	1975	1976	1977	Total
Northwest				$1,552,000				$1,552,000
North Central			$ 290,500					290,500
Northeast	$34,000		5,315,000	6,823,500		$ 100,000		12,272,500
Central Corridor	8,000	$94,000		1,083,400		550,000		1,735,400
North Shore			4,274,500			468,100		4,742,600
Southwest								
South Shore				500,000				500,000
Delaware Bay				244,000	$106,000			350,000
State Totals	$42,000	$94,000	$9,880,000	$10,202,900	$106,000	$1,118,100		$21,443,000

*Does not include the open space matching fund program administered by the Department of Housing and Urban Development. The available information did not permit the assignment of funds to individual regions or to specific levels of government. Collectively, municipalities and counties received $6,462,400 for open space acquisition in 1971 and 1972.

County Level — Scheduled county acquisition and development projects (excluding HUD funded projects) are estimated to cost $26,416,400. County appropriations and bonds issues will account for 47% ($12,408,200) of the expenditures, the State Green Acres Programs 41% ($10,721,500), and the Land and Water Conservation Fund 12% ($3,286,700).

Fifty percent of the scheduled county acquisition program ($21,443,000) will be financed by the State ($10,721,500) (see Table 10). County funds will finance 46% of the acquisition costs ($9,921,500) and the Land and Water Conservation Fund will fund 4% ($800,000).

TABLE 11: COUNTY SCHEDULED DEVELOPMENT PROGRAM* 1971-1977 (cost)

Region	1971	1972	1973	1974	1975	1976[1]	1977[1]	Total
Northwest								
North Central		$ 64,000	$ 95,000		$ 712,500			$ 871,500
Northeast		240,000	88,000	$ 546,000	1,000,000			1,874,000
Central Corridor		120,000		1,000,000	249,400			1,369,400
North Shore			297,500	476,000				773,500
Southwest				85,000				85,000
South Shore								
Delaware Bay								
State Totals		$424,000	$480,500	$2,107,000	$1,961,900			$4,973,400

*Does not include the open space matching fund program administered by the Department of Housing and Urban Development. The available information did not permit assignment of funds to individual regions or to specific levels of government. Collectively, the counties and municipalities received $1,733,700 for recreation development in 1971 and 1972.

[1]Land and Water Conservation Fund monies have not been committed for projects scheduled for completion in these years.

TABLE 12: STATE SCHEDULED ACQUISITION PROGRAM 1971-1977 (cost)

Region	1971	1972	1973	1974	1975	1976	1977	Total
Northwest	$ 37,600	$ 252,000	$ 3,738,000	$ 6,316,800	$2,850,800	$5,827,500	$ 3,500,000	$22,521,900
North Central	648,100	619,900	4,900,000	2,614,000	1,800,000	150,000	1,500,000	12,232,000
Northeast	1,063,200	2,158,100	7,800					3,229,100
Central Corridor	40,900		13,915,000	515,000	1,200,000	200,000		15,870,900
North Shore	644,200	930,200	8,212,300	350,000	1,400,000	328,000	1,300,000	13,164,700
Southwest		135,100		800,000		2,690,000	1,150,000	4,775,100
South Shore	37,200	75,700	875,000		1,500,000	395,000	5,700,000	8,582,900
Delaware Bay	3,500	57,000		400,000	96,000		320,000	876,500
State Totals	$2,474,700	$4,228,000	$31,648,100	$10,995,800	$8,846,000	$9,590,500	$13,470,000	$81,253,100

Scheduled recreation development at the county level will cost $4,973,400 (see Table 11). The counties will share the costs equally with the Land and Water Conservation Fund Program.

State Level—Scheduled state acquisition and development programs will cost $113,830,300 between 1971 and 1977. Funds from the two Green Acres Bond Issues will account for 38% ($42,554,300) of the costs. The Water Resources Fund will provide another 20% ($22,875,900) and state appropriations will amount to $18,439,500 or 16%. Federal funds from the Department of Housing and Urban Development open space program, the Land and Water Conservation Fund program and the National Park Service will account for the remaining 26% ($29,960,600).

TABLE 13: STATE SCHEDULED DEVELOPMENT PROGRAM 1971-1977 (costs)

Region	1971	1972	1973	1974	1975	1976	1977	Total
Northwest	$1,618,500	$1,300,800	$3,261,800	$4,220,000	$5,055,000	$4,960,000	$4,790,000	$25,206,100
North Central	375,400	369,200	17,000	555,000				1,316,600
Northeast		24,000	51,000					75,000
Central Corridor	10,000	64,400	232,400	110,000				416,800
North Shore	75,300	441,300	1,936,000	150,000				2,602,600
Southwest		372,000	79,200					451,200
South Shore	132,000	500,900	1,380,200					2,013,100
Delaware Bay		315,800						315,800
Statewide[1]			180,000					180,000
State Totals	$2,211,200	$3,388,400	$7,137,600	$5,035,000	$5,055,000	$4,960,000	$4,790,000	$32,577,200

[1]Funds are not assignable to any one region.

Over 50% ($42,554,300) of the state's scheduled acquisition program ($81,253,100) will be financed by funds derived from the Green Acres Bond Issues (see Table 12). In addition, the Water Resources Fund will finance 28% ($22,875,900). The L&WCF program is expected to provide $11,297,900 (14%), and the HUD program is expected to provide $4,450,000 or 5% of the costs.

The scheduled state development program will cost $32,577,200 (see Table 13). State appropriations amounting to $18,439,500 will finance 57% of the costs and the L&WCF program is expected to provide the remaining $14,137,700.

Interstate Level—The Palisades Interstate Park Commission will finance its $6,645,300 development program using various fund sources. Appropriations from the states of New Jersey and New York are the primary sources of the Commission's funds. In addition, the Commission obtains funds from user fees and property rentals. (See Table 14.)

Federal Level—Congressional appropriations will provide the funds necessary to carry out the scheduled federal acquisition and development program ($18,144,600) and the acquisition costs of the Delaware Water Gap National Recreation Area, which are not included in the present schedule for the lack of information (see Tables 15 and 16). Receipts of fees charged for use of certain federal areas and facilities, proceeds from the sale of certain federal surplus Properties and annual Congressional appropriations are expected to provide $32,164,700 in matching funds available to state and local units of government under the Land and Water Conservation Fund. The HUD funds, amounting to $12,645,600 for all governmental levels, have been provided by Congressional appropriations.

TABLE 14: INTERSTATE SCHEDULED DEVELOPMENT PROGRAM 1971-1977 (cost)

	1971	1972	1973	1974	1975	1976	1977	Total
Northeast			$1,427,300	$5,218,000				$6,645,300
State Totals			$1,427,300	$5,218,000				$6,645,300

TABLE 15: FEDERAL SCHEDULED ACQUISITION PROGRAM* 1971-1977 (cost)

Region	1971	1972	1973	1974	1975	1976	1977	Total
Northwest		$3,000,000						$3,000,000
North Central		475,000	$200,000	$ 6,000				681,000
Northeast								
Central Corridor								
North Shore		135,000	250,000	425,000	$450,000	$ 225,000		1,485,000
Southwest								
South Shore		174,000	70,000					244,000
Delaware Bay					420,000	1,000,000	$735,000	2,155,000
State Totals		$3,784,000	$520,000	$431,000	$870,000	$ 1,225,000	$735,000	$7,565,000

*Does not include the acquisition costs for the Delaware Water Gap National Recreation Area.

TABLE 16: FEDERAL SCHEDULED DEVELOPMENT PROGRAM* 1971-1977 (cost)

	1971	1972	1973	1974	1975	1976	1977	Total
Northwest				$1,906,000	$ 193,000	$ 425,000	$288,000	$2,812,000
North Central		$42,000	$ 773,200	1,077,500	1,176,500	2,038,000	223,000	5,330,200
Northeast		54,000	355,000	937,000	512,000	171,000	58,000	2,087,000
Central Corridor								
North Shore								
Southwest								
South Shore			10,400			98,000	242,000	350,400
Delaware Bay								
State Totals		$96,000	$1,138,600	$3,920,500	$1,881,500	$2,732,000	$811,000	$10,579,600

*Does not include the total development costs of the Delaware Water Gap National Recreation Area.

PROGRAM ANALYSIS

Federal Funding Programs

Land and Water Conservation Fund* — Under the Land and Water Conservation Fund program scheduled state and local acquisition and development projects costing $64,329,400 will be financed on a 50-50 matching basis. Of the total L&WCF monies, $32,164,700, 62% ($19,951,800) will be used for recreation development and the remaining 38% ($12,212,900) will be used for acquisition.

Scheduled state projects will receive 79% ($25,435,600) of the L&WCF monies and scheduled local projects will receive 21% ($6,729,100). The substantial difference between these percentages does not indicate a distribution preference in favor of state projects; rather, the disparity can be attributed to the inability to predict the location and nature of future local projects. Only local projects already qualified for L&WCF funding were included in the scheduled programs, while all planned state projects for which L&WCF funding was anticipated were included. It is expected that the final distribution of L&WCF monies to state and local projects will be nearly equal during the seven year period.

At the state level, 56% ($14,137,700) of the L&WCF monies will be used for development and the remaining 44% ($11,297,900) for acquisition. The counties and municipalities, concentrating on developing lands previously purchased under the Green Acres Bond Programs, will use 86% ($5,814,100) of their present share of the L&WCF monies for development.

The counties and municipalities will receive nearly equal amounts under the L&WCF program, $3,286,700 and $3,442,400, respectively. Scheduled development projects account for 76% ($2,486,600) of the county L&WCF funded program and 97% ($3,327,400) of the municipal program.

Open Space Program — Funds received by the state and local levels of government under the Open Space Program administered by the Department of Housing and Urban Development will amount to $12,645,600. Eighty-six percent ($10,912,400) of these funds have been committed for acquisition projects and the remaining portion for recreation development.

In 1971 and 1972, HUD funded local projects amounted to $8,195,600; acquisition projects accounted for 79% ($6,462,400). The State's entire HUD commitment ($4,450,000) was used for acquisition.

* Appendix O contains a history of Land and Water Conservation Fund expenditures in New Jersey from the beginning of the program in 1965 through the end of fiscal year 1972. A discussion of the distribution of the monies to different levels of government and type of program and the recreation facilities developed is included.

Since this fund has been absorbed into the Federal Revenue Sharing Program, it will no longer serve as a dedicated source of open space acquisition and recreation facility development monies.

State Funding Sources

Green Acres Programs—The unexpended balance of the 1961 Green Acres Bond Issue amounting to $4,095,000 at the beginning of fiscal year 1971 will be spent during the first two years of the scheduled acquisition program. The State will use $3,059,900 for acquisition, municipalities $899,150, and counties $135,950.

The 1971 Green Acres Bond Issue Act, approved by public referendum, authorized the issuance of bonds for $80,000,000 to be used for county, municipal, and state acquisition of open space lands. According to the distribution provisions, fifty percent of the bond proceeds will be used for state projects and fifty percent for local projects.

Water Resources Fund—Under the Water Conservation Bond Act, approved by public referendum in 1969, the State was authorized to expend $29 million of bond issue revenues for planning and site acquisition for future water supply facilities. The scheduled state acquisition program includes the expenditure of $22,875,900 of the authorized funds. Plans for two sites are under review at the present time, and therefore the funds designated for the sites' acquisition are not included in the scheduled acquisition program.

State Appropriations—State appropriations are expected to account for $18,439,500 of the cost of the State's scheduled development program for the 1971-1977 period. On an annual basis, this amounts to an average appropriation of $2.6 million.

The Department of Environmental Protection receives an annual appropriation of $3.5 million for capital recreation improvement; however, approximately $900,000 is used for major maintenance projects and historic structures restoration. Therefore, only $2.6 million is actually available for new recreation facility development.

ADDITIONAL FUNDS FOR LOCAL ACQUISITION AND DEVELOPMENT (1971-1977)

The acquisition and development schedules for the state level included planned projects and anticipated sources of funds, including the Land and Water Conservation Fund. The local schedules, however, included the acquisition projects expected to be funded under the Green Acres Programs but not all of the acquisition and development projects that will be eventually funded under the Land and Water Conservation Fund Program. Since the State does not become aware of proposed local projects until they are submitted for state review and transmittal to the Bureau of Outdoor Recreation for final approval, only those local projects which have been approved for L&WCF funding were included in the schedules.

Assuming full funding of the L&WCF program at the authorized level, the State of New Jersey would receive an average annual allocation of $6 million. At this level, a total of $15 million would be available for local projects by the end of 1977. These funds would generate $15 million of matching local funds to produce a total amount of $30 million for county and municipal acquisition and development.

ESTIMATED COSTS OF FACILITY DEVELOPMENT TO MEET THE 1985 RECREATION NEEDS—LEVELS OF GOVERNMENT

The development costs of recreation facilities required to meet the 1985 recreation needs have been estimated so that the progress made towards meeting these needs through the completion of scheduled development programs could be ascertained. Based upon these findings, the future fiscal requirements of the municipalities, counties and State can be predicted and funding programs designed to meet a reasonable level of need can be proposed.

The first step followed in estimating the development costs was to arrive at an estimate of the facility development cost per recreation day for each activity. Based upon available New Jersey construction cost data, the average development cost of each type of facility was determined. These cost figures were divided by the average recreation day capacities of the facilities in order to arrive at the development costs per recreation day for each activity.

For each jurisdiction, the 1985 unmet demand assigned as its responsibility for each activity was multiplied by the appropriate development cost per recreation day. The sum of the activity development costs represented the jurisdiction's estimated 1985 development costs.

Municipal level—Statewide, the development cost of the outdoor recreation facilities required at the municipal level by 1985 is estimated at $738,671,000.

County level—New Jersey's twenty-one counties, to meet their 1985 assigned outdoor recreation responsibilities, will have to develop facilities totalling an estimated cost of $518,474,000.

State level—The estimated development cost of the recreation facilities required to meet the state level's 1985 recreation responsibilities is $151,524,000.

A regional breakdown of the 1985 estimated recreation facility costs is presented in the following table:

Estimated Costs for Municipal, County and State Facility Development to Meet 1985 Unmet Recreation Demands

Region	Estimated Costs
Northwest	$ 44,638,000
North Central	93,497,000
Northeast	535,761,000
Central Corridor	105,073,000
North Shore	218,259,000
Southwest	116,630,000
South Shore	264,280,000
Delaware Bay	30,531,000

ADDITIONAL DEVELOPMENT FUNDS REQUIRED TO MEET THE 1985 FACILITY DEFICITS MUNICIPAL, COUNTY AND STATE LEVELS

Although the scheduled development programs of the municipalities, counties, and State will provide a substantial number of new recreation facilities, they will fall far short of meeting all of the 1985 outdoor recreation facility deficits identified at these jurisdictional levels. Continuation of the development programs at their present levels of funding after 1977 would still result in sizable 1985 facility deficits at all governmental levels.

Including the $7,500,000 generated by the Land and Water Conservation Fund matching funds ($3,750,000 of Land and Water Conservation funds for development) which was not included in the municipal scheduled recreation development program, New Jersey's municipalities will expend approximately $14,155,000 by 1977 on recreation development. If the present funding level is projected to 1985, excluding future funds from the defunct HUD Open Space Program, the total municipal recreation development expenditures for the 1971-1985 period can be anticipated to amount to $26,000,000. Application of this estimate to the municipal costs for recreation facility development to meet the 1985 needs results in a funding deficiency exceeding $700,000,000.

Counties through their scheduled development programs and the additional funds available under the Land and Water Conservation Fund ($3,750,000) are expected to spend $12,473,400 during the 1971-1977 period on new recreation facilities. Continuation to 1985 of the present annual county expenditure rate would result in a $24,000,000 county facility development program between 1971 and 1985. If the counties are to meet their 1985 facility development responsibilities, additional funds amounting to over $490 million will have to be spent on recreation development.

The State's scheduled development program for the 1971-1977 period is expected to cost $32,577,200. At the current annual appropriation rate, the State's development program for the 1971-1985 period would amount to just over $68 million.

Since the State's estimated share of the development costs of the facilities required to meet the 1985 recreation demand amounts to $151,524,000, there would be a development funding deficiency at the state level amounting to over $83 million by 1985.

In estimating the three jurisdictions' future development expenditures, it was assumed that adequate Land and Water Conservation Fund monies would be available to match the municipal, county and state funds. An annual Land and Water Conservation Fund apportionment for acquisition and development amounting to $6 million, commencing Fiscal Year 1973, is necessary to provide sufficient matching funds.

RECOMMENDATIONS—ADDITIONAL DEVELOPMENT AND ACQUISITION FUNDING SOURCES

From the previous discussions of New Jersey's recreation facility deficits and the development costs of the facilities to meet the 1985 outdoor recreation demands and the State's open space acreage deficits, it is apparent that there is an urgent need for additional sources of funds to expand municipal, county, and state development and acquisition programs. In the face of rapidly escalating facility construction and land acquisition costs, additional funding programs should be initiated promptly, to take advantage of today's cheaper prices.

Green Acres Bond Issue—Though a net gain of 122,299 acres of open space is expected to be realized under planned federal, state, county and municipal acquisition programs, New Jersey will need an additional 185,000 acres of open space by 1985. The planned open space acquisition programs fall 124,000 acres short of meeting the 1970 open space requirements.

New Jersey has completed one successful Green Acres Program (1961 Bond Issue) and is in the process of acquiring 80,000 acres of public open space financed by funds authorized by the Green Acres Bond Act of 1971 and matching appropriations from counties and municipal governments.

The 1971 Act provides $40 million for state acquisition and another $40 million to be used on a matching basis for local acquisition, thus generating, statewide, $120 million for open space acquisition. Land acquisition completed under this program will still leave the municipalities, counties and State faced with a 169,000 acre open space deficit for 1985.

In view of the dwindling supply of quality open space, especially near the State's urban centers, the rapidly escalating land prices, and the severe open space deficits faced by local and state levels of government, a third bond issue for $100 million to refinance the present Green Acres Program is recommended. Only through a continuous, vigorous and adequately funded land acquisition program can sufficient public open space be preserved for future generations.

The provisions of the recommended third Green Acres bond issue should be similar to the ones in force for the present program, with one-half of the bond issue sale proceeds designated for local matching grants and the other half reserved for state acquisition.

The alternative to the proposed bond issue would be an annual State appropriation of $20 million for the same purposes. Fifty percent of each appropriation would be dedicated to the state acquisition program and the remaining portion would fund a matching grant program for local acquisition.

Recreation Facility Development Funding—Comparison of scheduled development funding levels with the projected municipal, county and state development costs to meet 1985 recreation facility needs clearly shows that these units of government will be unable to provide the facilities necessary to satisfy present and future need levels; municipalities have a 1985 projected recreation development fund deficit of over $712 million, New Jersey's twenty-one counties a $490 million development fund deficit, and the State an anticipated $83 million capital improvement fund deficiency.

If the citizens of New Jersey, now and in the future, are going to have access to the quality of life which they deserve, new funding sources must be established so that facilities to accommodate their recreation desires may be constructed. Two alternative approaches to providing the funds required to undertake meaningful state and local recreation facility development programs are available. The first approach would include a State bond issue for $100 million for state and local capital recreation development. A distribution formula should be spelled out in the bond issue which gives local governments 60%-75% of the funds for 50-50 matching development grants and the State 40%-25% of the funds for the design and construction of recreation facilities. With the exhaustion of these bond issue funds, another recreation development bond issue for $150 million should be enacted. Provisions of the second bond issue should be the same regarding fund distribution as those proposed for the original program.

The second approach, the alternative to the recreation development bond issues, would be a ten year program funded by annual state appropriations totalling $25 million. These appropriations would be used to finance a matching grant program for local recreation development and the remaining portion to expand the state capital improvement program.

Under either of the alternative approaches presented, the annual state capital improvement appropriations should be continued at full funding, or the recommended funding levels should be adjusted upward by the amount the appropriations are cutback. The full amount of such adjustments should be earmarked for the state recreation development program.

Future Legislation and Related Actions

Even though many significant strides have been taken toward protecting and improving the quality of New Jersey's living environment, there is much more that needs to be done. Because of the State's expanding population, development pressures on open space are increasing; there are growing demands for energy; and there are increasing numbers of cars on the road producing air pollutants and larger quantities of domestic and industrial wastes discharged into the environment. Yet along with these mounting threats, the need to preserve the environment for the use and enjoyment of people is growing in proportion to the population increase. It is apparent then that this is not the time to reflect on accomplishments, but rather an opportunity to take greater steps forward.

Responding to the increased public awareness and growing concern for the environment, Governor William T. Cahill has proposed a comprehensive environmental legislative program. Problems ranging from air and water pollution to the dwindling supply of agricultural land are addressed in the action oriented program. The following section pertaining to pending and proposed legislation and executive action has been based largely on the Governor's proposed program and additional recommendations to be implemented at a latter date.

PENDING LEGISLATION

PROPERTY TAX EXEMPTION FOR NON-PROFIT CONSERVATION AND RECREATION LANDS

The rapid disappearance of open space is viewed with great concern, and justifiably so, by citizens and government agencies alike. Preservation of the State's remaining open space can not be accomplished by government alone. It requires a concerted effort on the part of public and private agencies. The significant role played by private citizen groups in acquiring open space lands for preservation purposes must be continued and encouraged to expand.

A proposal for property tax exemption for privately held open space and the improvements thereon which would facilitate the acquisition and retention of such lands for public use and enjoyment is now pending in the Legislature. To be eligible for exemption the property must be owned by a qualified nonprofit organization engaged in conservation and recreation projects which the Commissioner of Environmental Protection, after consultation with the Natural Areas Council, certifies to the Director of the Division of Taxation to be qualified and operating in the public interest.

ACT TO REQUIRE THE SUBMISSION AND REVIEW OF ENVIRONMENTAL IMPACT STATEMENTS ON CERTAIN MAJOR STATE AND PRIVATE PROJECTS

It is recommended that this Act will require state agencies and certain private developers to consider and report upon the environmental aspects and consequences of their major actions.

The Act will specifically require the submission of an environmental impact statement to the Department of Environmental Protection on all major projects that could be of significance to the quality of the environment in the State of New Jersey. Projects of state agencies will include all major actions not previously covered under the provisions of the National Environmental Policy Act. Private development will include facilities, or significant housing, industrial or commercial development.

The Department of Environmental Protection will be empowered to develop guidelines for the preparation of the environmental impact statement and establish procedures for the document's timely review. When warranted, provisions for public hearings on the environmental impact statement will be conducted. The Commissioner of the Department of Environmental Protection will have the power to approve or disapprove projects from the private sector based on the findings and recommendations of the impact statement and public input. The Commissioner will be empowered to make recommendations to the Governor on major actions of state agencies.

The Act will further enable municipalities to pass legislation requiring the submission and review of an environmental impact statement to the local government when the municipality determines the proposed action could have significant impact on the local environment.

THE COMMUNITY PLANNING LAW

The Community Planning Law has been proposed as a countermeasure for the inadequacy and complexity of the existing legal framework regulating land use and designed to guard against disorderly and unplanned suburban sprawl. Over a period of years, local plans and ordinances would gradually be revised to meet the new standards based on statewide and regional needs as translated into specific decisions by local planning boards and based on local circumstances.

The Community Planning Law has two major objectives: (1) to streamline the local planning process by the elimination of duplicate processing procedures; and (2) to improve and strengthen local planning by increasing technical assistance, by linkages to state and regional plans, and by the addition of new local planning powers. Provisions are also included for statutory frameworks for site plan review, the planned unit development concept, the rights of the developer, and "critical area" development regulations.

Far from weakening municipal autonomy, the Community Planning Law strengthens the local boards which regulate development so as to take into account the full spectrum of economic, social, design, and physical community factors.

BICYCLE TRAILS AND FOOTPATHS ACT

The Bicycle Trails and Footpaths Act requires the Department of Transportation and counties and municipalities to establish and maintain footpaths and bicycle trails at all locations, where appropriate, at which a highway, road or street is being constructed, reconstructed, or relocated. The Department of Transportation is authorized to provide technical assistance and advice to counties and municipalities, when requested, in carrying out this Act.

The Act also creates the Bicycle Trails and Footpaths Construction Fund, administered by the Department of Transportation, with an annual appropriation of $250,000 to aid in the construction and maintenance of bicycle trails and footpaths.

HANDICAPPED CHILDREN'S RECREATIONAL OPPORTUNITIES ACT

The Handicapped Children's Recreational Opportunities Act authorizes the Commissioner of the Department of Community Affairs, with the advice of recreation experts, to develop a comprehensive recreation program for handicapped children. This comprehensive program will act as a guideline for each municipality and county, or their delegated agency, in furnishing their recreation activity projects for handicapped children. Each project must first be approved by the governing body before it is submitted to the Commissioner for his approval. Each municipality and county operating and maintaining an approved project will receive a sum not to exceed $1.00 for each two resident handicapped children in order to implement the handicapped children's program.

In addition to the $54,000 appropriated for the first fiscal year to carry out the Act, the Commissioner may accept and expend any gift or grant for any of the purposes of this Act.

COUNTY ENVIRONMENTAL PROTECTION COUNCIL ACT

Recognizing the importance of the services provided by municipal environmental commissions (N.J.S.A. 40:56A-1 et seq., adopted August 6,1968 and amended by N.J.S.A. 40:56A-1 et seq., adopted May 25, 1972), the Legislature has proposed the County Environmental Protection Council Act to encourage the establishment of environmental agencies at the county level in order to provide for cooperation in environmental matters between state and county governments. The County Envrionmental Protection Council would be authorized to serve as an advisor to the county board of freeholders in the formulation of comprehensive policies for the protection of natural resources, the promotion of environmental protection, and the prevention of environmental pollution.

With the permission of the board of freeholders, the council would be able to acquire property in the name of the county and then administer these lands in a manner best suited to fulfill the county's environmental needs.

STATE TECHNICAL ASSISTANCE AND GUIDANCE TO LOCAL ENVIRONMENTAL COMMISSIONS ACT

This Act provides for technical assistance and guidance to local environmental commissions through the Office of Environmental Services of the Department of Environmental Protection. The assistance provided will range from technical and legal research, public relations, coordination between local environmental commissions and environmentally oriented agencies, to information concerning federal and state assistance programs and aid in establishing new environmental commissions.

In order to qualify for state assistance, the local environmental commission must demonstrate to the Office of Environmental Services that it has coordinated its activities with the municipal planning board so as to avoid duplication and conflicts of effort.

To provide for the services authorized by this Act, the Department of Environmental Protection is appropriated $100,000.

SNOWMOBILE REGISTRATION

Legislation has been introduced which aims to promote the safe and proper use of snowmobiles in New Jersey by encouraging their use in ways which would minimize the detrimental effects upon both the environment and the safety and enjoyment of the user and general public. The registration of snowmobiles is required in order to provide for the enforcement of provisions concerning their use and control. The provisions range from limiting their operation upon public highways and on private property without the consent of the owner, to reducing the effects on the environment of excessive noise and

affording opportunities for the compatible enjoyment of various recreational activities on the State's lands and open spaces.

CLEANING AGENT CONTROL ACT

The Cleaning Agent Control Act would provide the framework for the Department of Environmental Protection to regulate the contents of all cleaning agents. For an effective water pollution abatement program, the State should reduce the sources of polluting agents, some of which are cleaning agents, wherever possible. When alternatives exist, they should be explored thoroughly, and the one which proves least damaging to the environment should be chosen except in such cases where there could be harmful side affects to humans.

ACT TO PROMOTE RECYCLING OF BEVERAGE CONTAINERS

Because of New Jersey's supply of land suitable for solid waste disposal is rapidly dwindling, the Act to Promote Recycling of Beverage Containers has been proposed. The bill would impose a high deposit on drink containers, and thus encourage the recycling of containers and reduce the amount of solid waste produced in the State.

EXECUTIVE ORDER

ENVIRONMENTAL IMPACT STATEMENTS FOR STATE PROJECTS*

In his Third Annual Message To The Legislature, Governor Cahill announced his intention of issuing an Executive Order which will require review and approval by the Department of Environmental Protection of all major projects built or funded by the State before they are allowed to proceed. This action will insure that state financed development projects will be designed and constructed for minimum negative impact on the environment.

PROPOSED LEGISLATION

OPEN SPACE CONVERSION SURCHARGE

Agricultural land represents valuable, irreplaceable open space. For the recreationist, it serves as a feeding ground for many species of wildlife, and it is a place for hiking, picnicking, birdwatching and other activities. Agricultural land creates breaks in the visual landscape and serves as aquifer recharge areas. Therefore, it is essential to the well being of the State's activities to preserve the remaining agricultural land.

The alarming rate of agricultural land loss to other uses in New Jersey is well documented. From 1962 to 1972 the State lost approximately half a million acres of valuable agricultural land; six thousand farms were converted to other uses.

The chief factor affecting decisions to sell lands is the capital gain which results from the sale. If land conversion is

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* On October 5, 1973, Governor Cahill issued Executive Order No. 53 requiring all departments and agencies of the State to assess the environmental impact of all state funded or state sponsored construction projects in excess of $1 million or those projects located in environmentally sensitive areas. The Department of Environmental Protection will review the environmental impact statements submitted by State agencies and make recommendations on the impact of the projects to the State Planning Task Force.

to be slowed, this gain must be reduced. The profits accruing from the sale of land are, in large part, unearned. That is they are created not by the work or investment of the seller, but by actions of society at large, and often by government itself. These actions include the extension of road networks to a particular area, provision of water supply, construction of sewerage systems, or other similar systems paid for with public dollars. The irony in this situation is that government must provide these systems, but that government also must insure that agriculture and open space are preserved, and unwise development stopped. Under present structure the achievement of the first goal makes it less likely that the second can be attained.

The Farmland Assessment Act has proven inadequate to significantly slow the transition of agricultural land to more profitable uses. Other methods of preserving agricultural land as open space must be implemented.

The purpose of the "Open Space Conversion Surcharge" is to recapture the unearned increment of profit from the sale of open lands, and dedicate it to public purposes, where it properly belongs since it was created in large part by government action. One result of the surcharge will be to chill the actions of speculators, whose role is to assemble usable tracts of open land for development. Where conversion cannot be stopped or slowed by this measure, the surcharge will provide the funds necessary to preserve in their open state other similar lands.

The provisions of the "Open Space Conversion Surcharge" will cover open lands five acres or more in size less than one-fifth of which is occupied by buildings, paving or other improvements. The provisions of the proposed act will require that:

1. Every buyer and every seller must report the purchase or sale of such lands to the Local Property Tax Bureau, Department of the Treasury. The report, on Form SR-1A, shall indicate the size of the parcel, the full consideration, and the date of the sale or purchase.
2. The Bureau shall bill any seller who has held such lands for less than six years on the following basis:
   A. Lands sold within three years of date of purchase shall be assessed at a rate of 50% of those profits exceeding 10% per year, compounded annually.
   B. Lands sold more than three years after the date of purchase but less than six years from the date of purchase shall be assessed at a rate of 33.3% of those profits exceeding 10% per year, compounded annually.
3. Intra-family transfers of lands and sale of lands to government agencies (state or federal) shall be exempt from the surcharge. The monies derived from this surcharge would be dedicated to a special fund to be used for preservation and acquisition by the State of open space and for retirement of Green Acres Bonds.

STATE SCENIC AND RECREATIONAL RIVERS SYSTEM

Many of New Jersey's streams and rivers, or segments of them, have already lost much of their value as recreational resources. Unfortunately, the products of urbanization, serious water pollution, and intense industrial and residential development along their banks have impaired their use or reduced the quality of experiences possible. If New Jersey's remaining unspoiled rivers and streams are to be preserved for future generations to enjoy, positive action must be taken now to protect these water courses and their shorelines from encroaching urbanization.

To preserve entire rivers or sections of rivers in New Jersey possessing significant scenic, natural or recreational qualities, it is proposed that a State Scenic and Recreational Rivers System be established by the New Jersey Legislature. Appropriate state agencies would be empowered to take the necessary actions to preserve and protect the values of the system's components and their adjacent lands. It is proposed that two classes of component rivers be established: scenic and recreational. For each river class, criteria for evaluting proposed components setting minimum standards for water quality, recreational potential, and scenic and natural values would be established. Management objectives and policies designed to protect and enhance the desirable attributes of components would be adopted.

Components of the state system could be nominated for inclusion in the National Wild and Scenic Rivers System. Upon

inclusion in the national system, rivers would be protected from federally licensed or funded water resource projects which would negatively affect them.

The initial component of the State Scenic and Recreational Rivers System would be the Mullica. Governor Cahill has directed the Department of Environmental Protection to take the appropriate measures to qualify the Mullica River System for inclusion in the National Wild and Scenic Rivers System. A prerequisite for national status is passage of state legislation providing adequate protection of the nominated river and its adjoining land areas.

AMENDMENT TO THE WATER POLLUTION STATUTES—REGIONALIZATION OF SEWER FACILITIES

Despite the advantages of regional facilities, i.e., economies of scale, higher degrees of treatment with more complex and expensive equipment, and employment of well qualified personnel, municipalities have been reluctant to form regional sewer districts as urged by the State. Authority to draw district lines and require authority formation is thus needed.

The proposed amendment to the Water Pollution statutes would give the Department of Environmental Protection the authority to draw service lines defining a region. If local communities fail to form regional authorities, the courts would have statutory direction to order the formation of the districts.

THE TOCKS ISLAND IMPACT AREA PROTECTION ACT

Completion of the Tocks Island project (Delaware Water Gap National Recreation Area) in the Northwest Region is expected to lead to intense development pressure on the surrounding areas. To guard against intrusive and tawdry development, the Tocks Island Impact Area Protection Act has been proposed by the Governor in his Third Annual Message to the Legislature, January 9, 1973. Passage of the act would create a regional system of controls over the utilization of land to guide development to avoid the loss of those amenities which now make the region unique.

Enactment of the bill would require the State to adopt guidelines for local land use planning and zoning designed to permit reasonable development consistent with the constraints imposed by the regional environment. Some municipalities in the area do not have even rudimentary zoning ordinances. The Act would authorize state enactment of zoning ordinances for those municipalities which do not adopt conforming plans and zoning within one year of the publication of appropriate guidelines.

THE SKYLANDS REGION PROTECTION ACT

Primarily a rural, recreational and watershed area, the Skylands Region, in the northern parts of Bergen and Passaic counties, will be undergoing severe development pressure as highways are extended into the area and more visitors arrive. The Skylands Region Protection Act would establish a regional system of controls over land use in the area, similar to the one proposed for the Tocks Island Region.

RECREATION FACILITY DEVELOPMENT FUNDING

It has become apparent that many of New Jersey's citizens will be unable to enjoy the benefits of outdoor recreation participation because of the lack of sufficient facilities to accommodate their demands, if new sources of funds for recreation facility development at the municipal, county and state levels of government are not provided. Therefore, a recreation facilities development program is recommended to be implemented by either bond issues for state and local capital recreation development or by a ten year program funded by annual state appropriations of $25 million. (See Funding Section.)

GREEN ACRES BOND ISSUE

Because of the alarming rate of open space conversion to other competing land uses and the increasing need for open space preservation for recreation and other non-consumptive beneficial uses, a third Greed Acres bond issue is proposed to refinance the present Green Acres Program. The recommended funding level of the local and state open space acquisition bond issue is $100 million. (See Funding Section.)

RELATED PROGRAMS IX

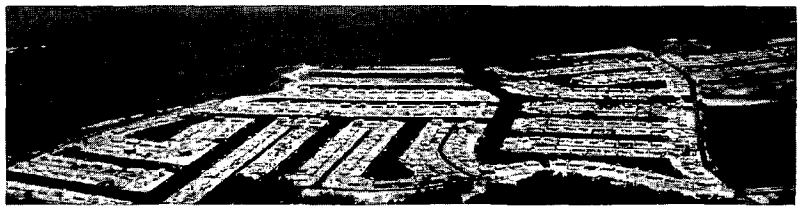
In addition to the Continuing Planning Program described in Chapter X, the planning staff of the Department of Environmental Protection has available the planning and research capabilities of other state agencies and programs. Within the Department itself the Natural Areas and the Historic Sites sections are conducting studies and preparing plans which will supplement the recreation plan in these areas. The Department is also embarking on a new Environmental Design Program which will provide data on New Jersey's natural resources and recommendations for use of land and water resources. Closely related to this effort is the mapping and regulating of the State's wetlands areas.

Outside the Department, the Division of State and Regional Planning and the newly established State Planning Task Force and Advisory Council on the Future of the State will provide technical planning capability and directions on questions regarding the State's long range development.

ENVIRONMENTAL DESIGN PROGRAM

Resource misuse is probably the most serious and difficult challenge to achieving a reasonable quality environment for New Jersey because it is irreversible and almost out-of-hand. There is no agreement on environmental objectives; there are no resource use standards; and multiple private and public biases continue to run rampant. The Department of Environmental Protection has determined that with state leadership, wise and orderly resource use and preservation decisions can be made and implemented. Thus the Department has proposed the initiation and development of an Environmental Design Program for New Jersey. The Design will be built to treat the environment as an interrelated system and will derive concepts, facts and recommendations for action. These will permit the State to shape a better environment for this and future generations.

The program plan will have three phases. The first will include a pilot project focusing on the Passaic River Basin. The project will gather all pertinent data, prepare visual displays and derive action oriented recommendations which will resolve resource use conflicts, promote statewide balanced resource use patterns and standards, preserve critical resource areas, determine alternative mechanisms for the implementation of each recommendation and assess the probable effects of each alternative. Phase II involves the partition of the State into meaningful environmental-ecological zones. Phase III will include preparation of a report which defines the time, money, and manpower required to complete and implement a statewide



design program and establish zone priorities for preparing designs. This Design program is expected to begin in mid 1973.

The data gathering procedures established and ongoing under the Environmental Design Program will provide future outdoor recreation plans with a much expanded and up-to-date inventory of natural resources in New Jersey and the basis for making important land use decisions in which recreation is given consideration.

STATE PLANNING TASK FORCE AND ADVISORY COUNCIL ON THE FUTURE OF THE STATE

Two new study/planning entities have recently been established by action of the Governor: the State Planning Task Force, created by Executive Order No. 40 dated December 22, 1972, and the Special Advisory Council on the Future of the State, created by the Governor in his Third Annual Message delivered on January 13, 1973. (See Legislation.)

Together these groups will be looking at long range questions and dealing with the issue of what the future of New Jersey should be in order to assure that the development of the State and its resources is realized in an orderly manner. The Planning Task Force will be focusing its efforts on the preparation of a comprehensive state plan. The Special Advisory Council will take into account the recommendations of the Task Force in preparing its own recommendations on the specific measures necessary to achieve the desired goals.

WETLANDS PROTECTION PROGRAM

Since the signing of the Wetlands Act on November 5, 1970, the Department of Environmental Protection has undertaken to map and inventory the areas defined as coastal wetlands.

Such wetlands account for about 5 percent of the land area in New Jersey. Part of them are privately owned and part are state owned riparian lands. Some entire tracts have been purchased by the state or federal governments. The courts recognize riparian lands as those which are washed by average high tides based on an astronomical cycle of 18.7 years. Wetlands on the other hand can lie above the average high tide level and still be sometimes subject to high water because of storms. (See Legislation for definition of wetlands.)

Before the Department can enforce controls over the use of wetlands, it has to be able to legally prove exactly which areas are wetlands and which are not. There has never been a sufficiently accurate survey to define the boundaries of the wetlands. The Act therefore provided two years, until November 5, 1972, during which the Department will accurately map the wetlands. When the job is done it is expected that the wetlands will total between 335,000 and 400,000 acres.

The wetlands are being mapped with aerial photography, using a technique never before tried on an entire state. The method hinges on the use of falsecolor infrared color film. This film is sensitive to light rays which the human eye cannot detect. Since various kinds of grasses and plants reflect infrared light differently, they register on film in different colors. This makes it possible to produce photographs which clearly show the division between species of plants which will grow in a saltwater environment and those dependent on freshwater even though the naked eye or conventional photography cannot see any difference from aloft.

To be covered by the survey are lands along Raritan Bay and the Raritan River to Sandy Hook, down the Atlantic Coast to Cape May and along the Delaware Bay shore and the Delaware River to the head of tidal action at Trenton. This includes tidal portions of an estimated 1,000 streams, many of which remain unnamed.

Completion of the aerial mapping of the test sections, in which airplanes fly at an altitude of 6,000 feet and cameras simultaneously photograph on infrared color film, conventional color film and black and white film, is being followed by an exhaustive study on the surface. Biologists must identify various plant species to prove that the aerial infrared color method of defining wetland boundaries is accurate enough to be acceptable as evidence in court. Court approval of the technique will

make it unnecessary to pursue the costly and time consuming ground research in the rest of the wetlands.

Maps measuring 3 by 3½ feet, showing a scale of 1 inch for 200 feet, will be prepared from the photographs and filed in courthouses of counties they cover. Transparent tax map overlays will be provided so that landowners will be able to easily learn which properties are under jurisdiction of the Wetlands Act. Affected landowners will also be notified by mail.

While the intricate mapping project proceeds, other experts in the Department of Environmental Protection are completing the proposed land use and development regulations for wetlands. A separate public hearing will be held in each affected county to give the public opportunities to comment on the regulations, after which a full review will be made before they become law. The Wetlands Act guarantees the individual the opportunity to challenge the regulations in court.

NATURAL AREAS PROGRAM

While there are probably no truly undisturbed natural areas left in New Jersey, there still remain areas that have been only slightly altered by man. Some of these have been preserved; others have not.

Natural areas are defined as areas of land or water which have retained their primeval character although not necessarily completely natural and undisturbed but having rare or vanishing species of plant or animal life or having similar features of interest which are worthy of preservation for the use of present and future residents of the State of New Jersey. In order to preserve these areas as living museums and to provide research opportunities and public education facilities based on these tracts, the Natural Areas Section was established within the Bureau of Parks of the Department of Environmental Protection in 1961.

A major function of the Natural Areas Section is to make periodic statewide surveys to determine the availability of land that should be preserved as natural areas or as wildlife preserves and recommend an overall program of acquisition. In fulfillment of this duty the Section completed a preliminary draft of a Natural Areas Comprehensive Plan in 1967. The Plan includes a discussion of the various reasons for preserving natural areas and the uses to which these areas can be devoted, management policy including the size of areas necessary to maintain the ecosystem, use policy including opportunities for research and education, various types of interpretative programs and facilities and an inventory and survey to determine the location and type of protected and unprotected natural areas in the State of New Jersey.

The inventory included private, public, and quasi-public lands which were preserved either as natural areas or were potential natural areas sites. The areas ranged in size from 33 acres to 16,000 acres. Information gathered on each site included ownership, acreage, ecological types, purpose of area, environment bordering the area, future preservation status, facilities available and any unusual features of botanical, zoological, geological or historic significance. In addition, each site was rated numerically on a scale according to its quality, protectibility, feasibility and balance. The information compiled in this survey formed the basis of the discussion of natural areas in the chapter on land resources in the present plan.

Of special consideration in future recreation plans is the plan's concluding discussion of problems of natural areas preservation and recommendations for approachs to deal with these problems. To deal with these issues, the plan recommends better coordination by state or private agencies and organizations owning or managing natural areas, continual surveys, development of a master plan and management policy. In addition the Plan recommends that natural areas receive special preservation status and protection through state legislation and consideration of limiting use of unique areas before they are destroyed by over use.

The authority vested in the Natural Areas Section by the 1961 Act includes finalizing the Natural Areas Comprehensive Plan, conducting surveys, recommending an over-all program of acquisition, maintaining and operating lands, preparing and disseminating literature and other materials to inform the public with respect to New Jersey's natural areas program and consulting with and cooperating with conservation and naturalist groups and organizations in the acquisition and mainte-

nance of natural areas. In view of these powers and responsibilities, along with its preliminary plan and already completed inventory, the Natural Areas Section can be expected to detail recommendations for the implementation of the plan and prepare final inventories and recommendations for legislation, funding and staffing. A final master plan outlining not only a statewide natural areas system and the means for preserving it and utilizing it for the benefit of the State's citizens will provide a valuable resource for research and education as well as the preparation of future recreation plans.

HISTORIC SITES PROGRAM

Historic preservation is a necessary facet of being. We must know where we have been in order to know where we are going. New Jersey has a rich heritage established on native, Dutch, Swedish, and English backgrounds. It played a vital role in the nineteenth century by accepting immigrants of many nationalities. New Jersey began by being an agricultural state, expanded on invention and industry as a part of a young republic, and became, by the twentieth century a highly urbanized state.

In order to preserve the significant objects and structures of the past, the Historic Sites Section was established in 1945 within the Bureau of Parks of the Department of Environmental Protection. The responsibilities and programs of this office are numerous and contribute to the preservation and interpretation of the State's historic resources. These programs include the administration of state owned historic sites, maintenance of a statewide historic sites inventory, restoration projects, public communication, education and interpretation, historic archeological investigation, historic marker program and the State Register of Historic Places.

Of major interest to the statewide recreation plan is the preparation by the Historic Sites Section of the Comprehensive Historic Preservation Plan, under guidelines and with financial assistance from the National Parks Service, which is intended to supplement the recreation plan in the area of historic sites and to conform with the policies and recommendations of the recreation plan. A preliminary draft of the plan was completed in September of 1970 and, approved by the National Park Service, will continue in effect until June of 1973. The plan consists of a preliminary master plan and survey of historic sites. When completed in 1973 this plan will include discussions of preservation problems and recommendations, an historical survey, an historic sites inventory and an annual preservation program. The initial inventory provided the basis for the discussion of historic sites in the chapter on land resources in the current plan and future work by the Historic Sites Section will be part of the updating of the statewide recreation plan.

BICENTENNIAL

Plans to celebrate the Nation's two hundredth birthday are currently being developed in New Jersey. Under the direction of the New Jersey Historical Commission, a network of official county and municipal Bicentennial Committees have been established in all 21 counties and in the "Big Six" cities of Camden, Elizabeth, Jersey City, Newark, Paterson and Trenton. Coordinating the efforts of all these groups in the future will be the New Jersey American Revolution Bicentennial Celebration Commission, created by legislation which Governor Cahill signed on March 2, 1973. (See Legislation and Related Actions Chapter.)

Communication and coordination of plans will be partially achieved by the mechanism of "Let's Talk Bicentennial" conferences. These meetings include representatives from all official Bicentennial Committees and reports on programs and plans of each committee plus progress reports on state and national programs are given.

The New Jersey Bicentennial legislation provides a $250,000 allocation for the first year of operation. This will give the new agency a head start in raising money from business and using its authority to enter a wide range of activities.

DIVISION OF STATE AND REGIONAL PLANNING

The Division of State and Regional Planning is located within the New Jersey Department of Community Affairs. The

Division, including bureaus of statewide planning, regional planning, and community development, operates under a mandate to promote programs to insure the orderly development of the State's physical assets by:

- assemblying and analyzing pertinent facts as to existing development conditions and trends;
- preparing and maintaining a State Development Plan and long-term development and capital improvement program for the future improvement and development of the State;
- undertaking the task of achieving fuller coordination and integration of the development activities of the several state departments; stimulating, assisting, and coordinating local, county, and regional planning activities;
- and conducting such studies as shall be necessary for the design and administration of programs of technical and financial assistance for the planning, development, redevelopment, and renewal of the State; and for such regions and localities as are or shall be established by the Legislature, or for which federal funds shall be made available.

Of special interest to the statewide recreation plan are the many studies and reports prepared by the Division. These include, among others, *Residential Development of New Jersey, Commercial Land Use in New Jersey, The Impact of Population and Economic Growth on the Environment of New Jersey, New Jersey's Shore: An Inventory and Analysis of Land Use, The Setting for Regional Planning in New Jersey* and *Community Planning*. A major resource for the present plan has been the *Open Space Policy* report used as a guideline for open space standards for all levels of government in New Jersey.

In addition to planning and research publications the Division of State and Regional Planning offers a resource of technical capability available to assist the planning staff of the Department of Environmental Protection in the preparation of the statewide recreation plan.

CONTINUING PLANNING X

To maintain and update a Statewide Comprehensive Outdoor Recreation Plan it is essential to review and evaluate portions of the plan through a continuous, ongoing planning program. Each update should reevaluate goals, objectives, policies and priorities in light of changes in the quantity and type of outdoor recreation facilities demanded. New Jersey's planning program is designed to provide up-to-date information through inventories of recreation facilities and resources and studies of special concern. This information will provide the basis for designing acquisition and development programs and allocating funds to best meet the recreation needs of New Jersey residents and to insure the protection of unique natural and cultural resources.

In addition to inventories and studies, a major effort will be made during the continuing planning program to formalize contacts with federal, state and regional recreation or planning agencies, where these contacts have not already been established. The purpose of this undertaking is to coordinate open space and recreation planning programs. Coordination with county park and planning commissions will also be an important goal of the planning program in order to assist local governments in determining recreation needs, to insure that future state plans will meet local planning needs for inventories and special studies as well as to gain local support for state programs.

Inventories

To provide accurate, up-to-date supply data for the next plan, inventories of public and private outdoor recreation facilities and open space recreation lands will be undertaken. Since the privately owned supply was reinventoried for only a few activities in the current plan, it is important that the next planning program give high priority to a comprehensive inventory of the private supply of recreation lands and facilities. New inventories will also survey activities not previously included. These activities will be those which have received new popularity (e.g., ski touring) or been affected by new technological advances (e.g., snowmobiling).

New inventories will provide more information than past inventories. To begin with, activity definitions and capacity

calculations will be re-examined. The outcome of this review will suggest what data on land and water resources and recreation facilities should be collected to provide the basis for realistic capacity determinations. In addition, it is felt that data on parking capacity, means of accessibility, service facilities and fees should be included.

In tabulating inventory data, changes will be made in the aggregation of data for future planning purposes. The supply data in the present plan has been aggregated by planning regions. Although this regional approach conforms with Bureau of Outdoor Recreation guidelines and is useful for statewide planning, each region includes two or more counties. For this reason the regional totals are not easily adaptable for use by local levels of government. Thus, future inventory summaries will provide county totals in addition to the required regional totals.

Special Studies

Along with the inventories, a number of special studies are needed to provide information and to improve methodologies for future plans. Current planning efforts are hindered by insufficient information in several areas. The greatest need is for a study of the relationship of rates of participation in various activities to the socio-economic characteristics of New Jersey residents. In addition, major studies are recommended on the following topics: urban needs, special groups, recreation standards, environmental education, recreation travel patterns of residents and non-residents, trails, scenic and recreational rivers including the Mullica River System, freshwater resources, and the Atlantic Coastline.

Some of these topics were proposed for study in the previous plan but were not undertaken. These previously outlined topics plus some new ones are proposed for study during the continuing planning program. They will be undertaken either as separate studies or combined into larger studies wherever possible. In some cases, the topics are so vast that only pilot projects will be undertaken at this time with the findings to determine the scale and design of more extensive future studies.

DEMAND

Demand methodology used in this and the previous New Jersey Outdoor Recreation Plan relied on the data of the Outdoor Recreation Resources Review Commission (ORRRC) reports completed in 1962. This study examined the relationship of recreation participation and various socio-economic factors. It is difficult to justify continued use of this information to determine current participation characteristics and to project future recreation demand by New Jersey residents based primarily on the fact that the ORRRC information is now about ten years old and has not been re-evaluated in terms of more recent information and trends. Also, since the ORRRC data grouped states together into regions, studies should be conducted which focus on New Jersey residents to determine what are their recreation participation interests and needs by socio-economic groups, ethnic groups, and special needs groups and to define distinctions between urban and rural recreation experiences in New Jersey.

The goal of future demand studies will be to gain information on what type of recreation activities New Jersey residents participate in and where they go to seek these experiences. These studies will also include participation in and demand for activities not previously included in the state plan. This information will be gathered by sample surveys of areas across the State and organized for cross-tabulation by type of development pattern (urban, suburban and rural) and population characteristics including age groups, educational levels, income levels, ethnic backgrounds and other characteristics which may be considered important.

In addition, studies will be designed to determine the nature and extent of latent demand or unfulfilled interest in recreation participation. The possible changes in recreation patterns produced by increased leisure time will also be evaluated to determine what impact this factor is having on the use of facilities both to ascertain how and when facilities are used

and what must be done to protect our natural resources from overuse caused by increased recreation demand.

URBAN NEEDS

Since the rate of urbanization is increasing yearly and the percent of the State's population living in urbanized areas is growing, it is imperative that all levels of government understand the nature and extent of urban recreation resources and demand and needs before all open space and natural resources are lost to other land uses.

The Urban Needs Study conducted for the present plan provided information on the extent to which municipalities are meeting the needs of urban residents for close-to-home activities. Further information is needed on the supply and location of all recreation resources in urban areas including public and private facilities. Other important aspects of urban recreation are the programs which encourage recreation participation and enable people who would normally be unaware of their opportunities or be unable to use them to enjoy recreational experiences. These would include education, safety, transportation and outreach programs.

This study would be concerned with all jurisdictions and would be designed to determine what roles and responsibilities each should assume. The municipalities included in the study would be chosen by criteria such as gross population, population density and population growth rate.

The nature and problems of recreation in New Jersey's urban areas must be defined if specific facilities and programs are to be devised to deal with them. This necessitates examining urban municipalities in order to see what facilities exist, what are their capacities, what are their condition and level of maintenance, who uses them and for what types of activities, and what are the physical or social barriers preventing maximum use.

SPECIAL GROUPS

The focus of this plan and indeed of most statewide recreation plans is primarily on determining the needs of the general population for open space and outdoor recreation facilities. This approach assumes that people know what activities they want and where to find them. No serious attempt has been made to determine whether one segment of the population needs or wants facilities which are different from those wanted by another group. Statewide plans generally do not explore demands and needs in such detail. To a limited extent in this plan and to a much greater degree in future plans, as more information becomes available, recommendations will deal with this problem.

During the continuing planning program, a study will be undertaken to define these groups in New Jersey, including the elderly, the handicapped and the physically and economically disadvantaged, and people with distinctive ethnic or cultural orientations. Data will be gathered on each group indicating its size and locations, recreation and leisure time activities and interest, factors preventing full participation, and what facilities and outreach programs are needed to help these people find the opportunities they desire.

RECREATION STANDARDS

The current plan points out that facility standards acceptable in rural areas are not necessarily acceptable in urban areas. Urban residents, for example, may be accustomed to

more heavily used swimming pools than suburban residents would willingly tolerate. For this reason, the Urban Needs Study followed a somewhat different approach to determine demand in urban areas than was used in the statewide demand methodology.

Although this assumption is assumed valid, the extent and nature of these differences have yet to be defined in New Jersey. As part of the continuing planning program, a study will be undertaken to survey use patterns of different types of facilities in urban, suburban and rural settings. This data will provide the basis for determining facility standards for all activities and types of areas in New Jersey. A comparison of these conclusions with refined demand data will provide a more precise basis for determining needs.

ENVIRONMENTAL EDUCATION

In an effort to help the citizens of New Jersey better understand their State, its natural resources, its economic and social trends, and threats to its environmental quality, programs of environmental education are important. Such programs include classroom work as well as field work for all school age young people and public information programs for all age groups. The purpose of these programs is to make people aware of their State's natural resources and environmental quality and the need to take care of these resources before they are destroyed altogether.

In 1971, New Jersey took a major step forward in providing the means for promoting environmental education throughout the State. The Environmental Education Act has stimulated the development of numerous environmentally oriented programs in local schools. Previously (in 1967), the State had created a State Council for Environmental Education with funds from Title III of ESEA. The Council prepared a Master Plan for Environmental Education which lays out a broad course of action which will unify in a cooperative effort the many isolated environmental education activities now going on in the State, to result in a comprehensive program of elementary and secondary, adult and higher education. The council has also undertaken several projects dealing with curriculum, training and administrative components of environmental education.

The Department of Education is instructed by the 1971 Act to consult with the Department of Environmental Protection "to designate and operate and develop Regional Environmental Education Centers and facilities for the purposes of assisting in the development of environmental education programs in each school district and providing environmental education instruction to public and non-profit elementary and secondary students and teachers." In its capacity of providing information to the public on environmentally related topics and assisting local environmental commissions, it is appropriate for the Department of Environmental Protection to take an active role in promoting and assisting in the development of all types of environmental education programs. As a part of this effort, the continuing planning program will explore ways in which the Department is currently fulfilling this responsibility and determine what additional efforts the Department could be making in this area through technical assistance, use of state lands as learning laboratories, etc.

RECREATION TRAVEL PATTERNS OF RESIDENTS AND NON-RESIDENTS

In New Jersey there is a high degree of travel for recreation purposes by residents and non-residents. Residents of neighboring states, especially those which are designated in

the plan as part of the Recreation Sphere of Influence, travel in large numbers to New Jersey's recreation areas, primarily the Atlantic coastline, for both vacation and day use visits. The pattern is also seen in reverse with many New Jersey residents traveling north, south, east and west, often out-of-state, for a wide variety of recreation experiences. Some information on resident travel patterns was provided by a study prepared in conjunction with the earlier statewide recreation plan.

Studies which will shed additional light on the travel patterns of both groups would be helpful in recreation and transportation planning. It would be useful to know where non-residents come from, who they are, where they go in New Jersey and for what purpose. New Jersey residents, on the other hand, seek recreation opportunities outside the State. It would be useful to know some of the characteristics of these people, why they are going out of the State rather than seeking recreation in New Jersey, and where they are going. If New Jersey's citizens are forced to travel out of state to seek recreation facilities which should be available within the State, this will demonstrate the critical need for more massive and more effective planning, funding and construction of recreation facilities within New Jersey.

TRAILS

The National Trails System Act of 1968 designated the Appalachian Trail, of which approximately 60 miles are within the northwestern section of New Jersey, as one of the initial components of the system. Two other trails in New Jersey have been designated as components of the national system. Both these trails, the Palisades Shore Trail and the Palisades Long Path, are in the Palisades Interstate Park and were designated as National Recreation Trails.

There are other trails and rights-of-way in New Jersey which are potential candidates for inclusion as National Recreation Trails. Canal towpaths, railroad abandonments, utility rights-of-way and existing trails can and do provide opportunities for hiking, horseback riding, bicycling, snowmobile and motorcycle riding or a combination of these uses. These potential trails are reasonably accessible to urban areas and could be considered for national designation. However, before these trails can be nominated to receive national recreation status, their corridors should be publicly owned or placed under easement agreements to insure their availability to the public for at least ten consecutive years. A trails study conducted for the purpose of establishing a statewide system of interconnecting

trails will permit the State to undertake a program of identifying and nominating trails for national recognition.

MULLICA RIVER SYSTEM-STATE SCENIC AND RECREATIONAL RIVERS SYSTEM

New Jersey, due to its geological heritage, has many fine rivers and streams suitable for various recreational activities commonly associated with such water courses. Already many of New Jersey's streams and rivers, or segments of them, have lost much of their value as recreational resources. Unfortunately, the products of urbanization—serious water pollution and intense industrial and residential development along their banks—have impaired recreational use of these rivers or reduced the quality of experience possible.

The Department of Environmental Protection has been directed by the Governor to take all of the steps necessary to have the Mullica River System designated a component of the National Wild and Scenic Rivers System and receive the protection provided under this program. To accomplish this task the Department will conduct a study to determine the suitability of the rivers comprising the system (see list) for national designation as required by the National Wild and Scenic Rivers Act. A bill creating a State Scenic and Recreational Rivers System and designating the Mullica River System as the initial component will be drafted and presented to the State Legislature for enactment. Permanent protection of the system's components and adjoining lands will be provided in the proposed act in conformance with federal requirements.

Other rivers or sections of rivers in New Jersey possessing significant scenic, natural or recreation qualities will be studied for possible inclusion in the state system and nomination to the national system. The following list of rivers identified for study is not intended to represent a complete list of candidates.

Potential Components Of The State Scenic and Recreational Rivers System

Mullica River System (Atlantic, Burlington, Camden and Ocean Counties; Southwest and South Shore Regions): Sections (totaling approximately 100 miles in length) of the Mullica River, Bass River, Batsto River, Nescochague Creek, and the Wading River including the West Branch and East Branch (Oswego River).

Mullica—The entire river, except that portion which lies upstream from Medford Road (approximately 42 miles in length).

Bass River—The segment (approximately 5 miles in length) below Stage Road to its confluence with the Mullica River.

Batsto River—The segment (approximately 14 miles in length) between the hamlet of Hampton Gate and its confluence with the Mullica River.

Nescochague Creek and Great Swamp Branch—The segment (approximately 7 miles in length) from Route 206 to its confluence with the Mullica River.

Wading River and its tributaries, the East Branch (Oswego River) and the West Branch—The Wading River (approximately 10 miles in length) from the confluence of the East and West Branches to its confluence with the Mullica River, the segment (approximately 12 miles in length) of the East Branch downstream from the reservoir at Sims Place and the segment (approximately 12 miles in length) of the West Branch downstream from Route 563 at Speedwell.

Passaic River (Essex, Morris, Passaic, Somerset and Union Counties; Northeast and Central Corridor Regions)—The segment (approximately 32 miles in length) from Route 512 below Millington to Route 23 at Signac.

South Branch of the Raritan River (Hunterdon and Somerset Counties; Northwest and Central Corridor Regions)—The segment (approximately 25 miles in length) from High Bridge to its confluence with the North Branch.

Rancocas Creek (Burlington County; Southwest Region)—The segment (approximately 23 miles in length) from Browns Mills downstream to its confluence with the Delaware River.

Ramapo River (Bergen, Morris and Passaic Counties; North Central and Northeast Regions)—The segment (approximately 18 miles in length) from Route 517 two miles upstream from Darlington to its confluence with the Passaic River.

North Branch of the Raritan River (Somerset County; Central Corridor Region)—The segment (approximately 10 miles in length) from Route 523 at Bedminister downstream to its confluence with the South Branch.

Paulins Kill (Sussex and Warren Counties; Northwest Region)—The segment (approximately 18 miles in length) from Stillwater to its confluence with the Delaware River at Columbia.

Great Egg Harbor River (Atlantic County; South Shore Region)—The segment (approximately 22 miles in length) beginning below the dam at the hamlet of Penny Pot and terminating at Great Egg Harbor Bay.

Maurice River (Salem and Cumberland Counties; Delaware Bay Region)—The segment (approximately 17 miles in length) beginning at a point 2 miles downstream from Malaga to the dam at Millville City creating Union Lake.

FRESHWATER RESOURCES

In preparing the present plan, a survey of the State's lakes, ponds and reservoirs was conducted. The inventory identified all freshwater resources in New Jersey, their location by municipality and county, their size and ownership and whether or not they were open for recreational use. This data formed the basis for much of the plan's discussion of water resources. Additional information is required, however, to permit more detailed analysis and recommendations for meeting the State's demand for water-based recreation.

As part of the continuing planning program, it is proposed to explore the following questions: (1) what is the relationship of water body size to type of activity use; (2) what is the compatibility of use by different activities from boating to swimming; (3) to what extent is access available including different modes of transportation, parking spaces and boat launching facilities.

ATLANTIC COASTLINE

New Jersey's single greatest natural resource is its Atlantic Coastline, famous for its beaches and boating opportunities. Since the latter part of the nineteenth century, New Jersey's temperate Atlantic shore has provided fashionable resorts (e.g., Atlantic City, Cape May, Red Bank, Long Branch, Ocean City and Asbury Park) and served as a recreational outlet for Philadelphia, New York City and New Jersey's urban centers.

The shore areas are now experiencing a number of problems which may reduce the attractiveness and usefulness of coastal resources. These problems include beach erosion, water pollution, user fees, and lack of access because of the

inadequacies of transportation, parking spaces and launching areas. Despite these difficulties the shore still draws large numbers of people on hot summer weekends from urban inland areas of New Jersey and neighboring states. These people are often attracted to a relatively few heavily used areas while other parts of the shore are underutilized.

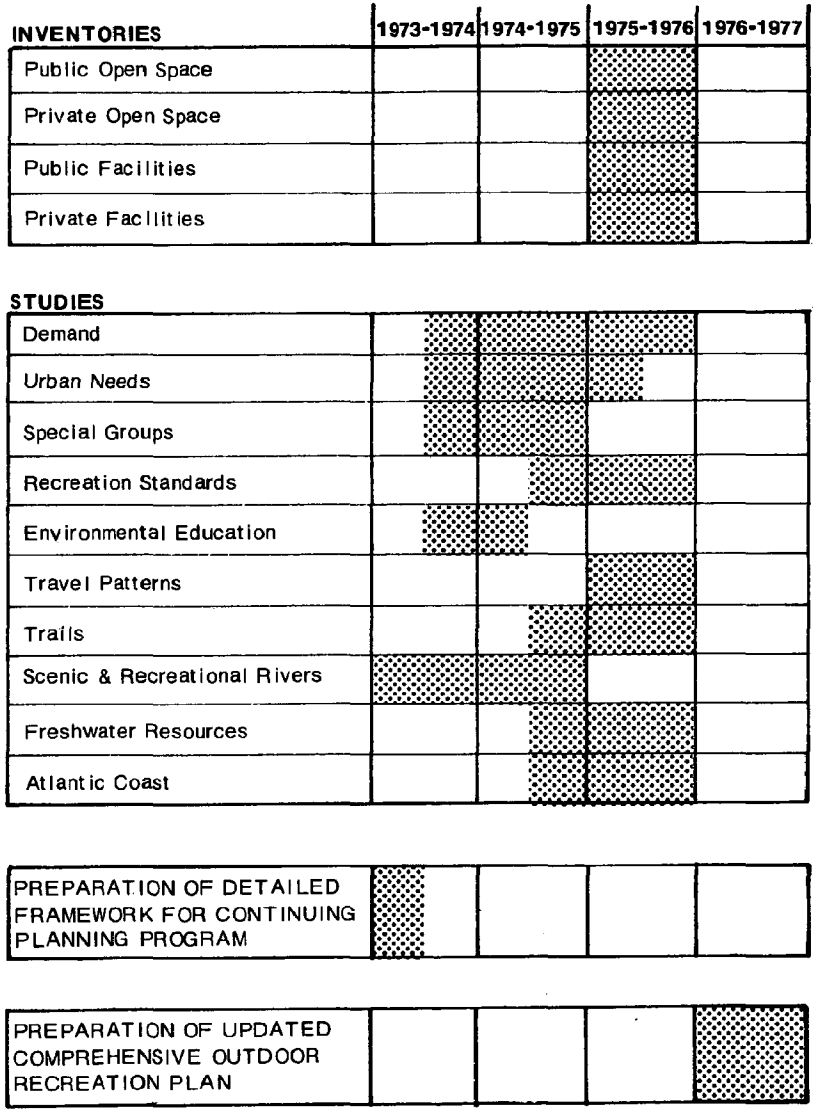
To insure the proper distribution of shore use and protection of the quality of this resource, a detailed study of beach and water area (coastal zone and bays), facility supply ownership, fees, water quality, user origin, parking and boat launching facilities will be undertaken. (Additional information on the coastal wetlands will be provided under the wetlands legislation and inventory. See Related Programs.) With this information, state and local governments will be better able to utilize this resource to its capacity and, thus, maintain recreational opportunities for New Jersey residents and a highly valuable tourist industry.

Schedule

The time schedule for completing the Continuing Planning Program extends to four years, beginning July 1, 1973, in order to enable the Department of Environmental Protection to address itself to all the areas of study deemed important and to permit the in depth research which will make the studies meaningful.

The scheduling of work within the four-year period has taken into consideration the following factors: the importance of the project; the stage at which the information is needed; the length of time required to gather the information and any possible difficulties in designing, testing and carrying out data collection procedures; the interrelationship of studies to the extent that a study can be combined with another to facilitate data gathering or that one study requires information collected

CONTINUING PLANNING PROGRAM
TIME WORK SCHEDULE



in another study; and the currency of the data (i.e., putting the inventories as far forward as possible so the data will be reasonably current when the final plan is prepared). When studies were not affected by any of these factors, they were scheduled so as to provide as nearly as possible an even distribution of the work load. (See Table.)

Staffing

Supervision and coordination of the Continuing Planning Program will be provided by the comprehensive recreation planning staff of the Department of Environmental Protection's Office of Environmental Review. The three full-time planning positions presently devoted to SCORP work will continue to be involved in the Continuing Planning Program. Their role, however, will be primarily a supervisory one. The studies and inventories will be designed, their conduct coordinated and in some cases the work done, the data tabulated and analyzed and the revised plan prepared by this staff. Much of the time and manpower needed to carry out the detailed work of the studies and inventories will be provided by a number of public and private institutions and organizations many of whom have provided assistance in the past and have indicated a desire and commitment to do so in the future.

The public agencies at the state level include, first of all, the divisions and personnel of the Department of Environmental Protection. Additional state agencies will be utilized where their expertise and personnel are appropriate—the Division of State and Regional Planning and the Division of Human Resources in the Department of Community Affairs; the Division of Planning and Research in the Department of Transportation; the Council on Environmental Education of the Department of Education; the State Soil Conservation Service; and the Division of Planning in the Department of Institutions and Agencies. At the local level, county park, planning, and environmental commissions plus municipal environmental commissions will assist in updating open space and facility inventories. In addition to the public agencies, the private sector can be expected

to cooperate through the services of the Audubon Society, the New Jersey-New York Trails Conference, the New Jersey Association for Retarded Children and the Sierra Club.

Another vital source will be the State's institutions of higher education. The Department of Environmental Protection has several projects underway with the State University at Rutgers and this institution can provide valuable assistance in a number of ways. Furthermore, the Department has developed cooperative arrangements with state colleges and private institutions such as Princeton and Fairleigh-Dickinson.

In addition, it may be necessary to draw upon consultants to carry out specific study projects. This will be done when the needed skills can best be provided in this manner.

The exact nature of the services provided by each of these agencies and organizations cannot be delineated until the specific objectives and methodology of each of the studies has been determined. During the first six months of the Continuing Planning Program, the Department's comprehensive recreation planning staff will study all aspects of the program in detail. Each study will be outlined in terms of goals, data to be collected and the procedures for analysis, and the use to which the information will be made in the comprehensive plan. When this has been completed, the staff will, when appropriate, contact those individuals or groups whose assistance will be required to carry out the specific work tasks.

The tabulation and analysis of data will be facilitated by the use of the programming and computer capabilities of the Department of Environmental Protection as well as similar technical capability in other agencies. It is the intention of the Office of Environmental Review to use this capability in creating an efficient system of data collection and analysis for all aspects of the Continuing Planning Program.

APPENDICES

APPENDIX A

LEGAL CITATIONS (NEW JERSEY STATUTES)

13:1B-65. Federal grants

The department, or any of the divisions established hereunder, may, subject to the approval of the Governor and Commissioner of Conservation and Economic Development, apply for and accept grants from the Federal Government or any agency thereof, and may comply with the terms, conditions and limitations thereof, for any of the purposes of the department, or of such division. Any money so received may be expended by the department, or such division, subject to any limitations imposed in such grants to effect any of the purposes of the department, or of such division, as the case may be, upon warrant of the Director of the Division of Budget and Accounting of the Department of the Treasury on vouchers certified and approved by the Commissioner of Conservation and Economic Development. L.1948, c. 448, p. 1842, § 116.

13:1D-1. Reorganization of Department of Conservation and Economic Development

The Department of Conservation and Economic Development heretofore established as a principal department in the Executive Branch of the State Government is hereby reorganized, continued and designated as the Department of Environmental Protection, and the office of Commissioner of Conservation and Economic Development is hereby continued and designated as the office of the Commissioner of Environmental Protection. L.1970, c. 33, § 2, eff. Apr. 22, 1970.

13:1D-2. Continuation of functions

Except as otherwise provided by this act, all the functions, powers and duties of the existing Department of Conservation and Economic Development and the commissioner thereof are continued in the Department of Environmental Protection as hereby designated and in the office of the commissioner thereof. L.1970, c. 33, § 2, eff. Apr. 22, 1970.

13:1D-9. Powers of department

The department shall formulate comprehensive policies for the conservation of the natural resources of the State, the promotion of environmental protection and the prevention of pollution of the environment of the State. The department shall in addition to the powers and duties vested in it by this act or by any other law have the power to: . . .

With the approval of the Governor, cooperate with, apply for, receive and expend funds from, the Federal Government, the State Government, or any county or municipal government or from any public or private sources for any of the objects of this act; . . .

STATE OF NEW JERSEY
OFFICE OF THE GOVERNOR
TRENTON

WILLIAM T. CAHILL
GOVERNOR

Re: A3819
Dear Mr. Hofe: Designations of State Officials and Agencies

Pursuant to Section 5(f) of the Land and Water Conservation Fund Act relating to the State officials and agencies having authority to accept Land and Water Conservation Fund payments, I am pleased to designate Richard J. Sullivan, Commissioner of our newly established Department of Environmental Protection, as State Liaison Officer for the State of New Jersey to the Land and Water Conservation Fund Program, Bureau of Outdoor Recreation.

Commissioner Sullivan, acting in the capacity of State Liaison Officer, will have full authority and responsibility to accept and to administer funds paid for approved Land and Water Conservation Fund Projects.

Sincerely,

/s/ William T. Cahill

GOVERNOR

Mr. G. Douglas Hofe, Jr.,
Director
Bureau of Outdoor Recreation
United States Department of the Interior
Washington, D.C. 20240

May 13, 1970

cc: Mr. Rolland B. Handley
Mr. Richard J. Sullivan

APPENDIX B

METHODOLOGY OF DEMAND DERIVATION

The main objective of the methodology is to provide a framework by which demand may be estimated for an average weekend day in the peak season. In Chapter II, innovative concepts and techniques employed in the methodology were discussed; the following paragraphs will explain in detail the procedures followed in the conversion of activity days derived in the ORRRC studies for the Northeastern region of the United States to recreation demand for New Jersey.

Because of the similarity of the socio-economic characteristics of New Jersey to those of the Northeastern region of the United States, the ORRRC Northeastern activity days were considered reflective of the influence of these characteristics on recreation participation and adequate for use in the methodology as the basis for determining New Jersey's recreation demand.

In the ORRRC studies, activity days were determined for 1960 for the Northeast region of the nation and then projected for the years 1976 and 2000 for the entire United States.[1] Since this plan's reference years, 1970 and 1985, do not correspond with the ORRRC projection years, the forecasted percentage increases for the United States were applied to the Northeastern activity days. The Northeast activity rates were then projected to 1970, 1985 and 2000 as shown in Table 1.

The Northeast ORRRC activity rates for the peak season, expressed in terms of "activity days", represent the number of separate activity occasions engaged in by an individual during the peak season. Since people commonly participate in two or more activities during a day, activity days converted to demand would represent the total number of persons recreating for a day. In order to facilitate comparison of demand to the capacities of facilities, activity days were converted to recreation days, persons participating in an activity for a day. For the

[1] *ORRRC Report #19,* pp. 122-138, Tables 1.02.02-1.02.18, p. 22, Table 6.

TABLE 1: DERIVATION OF THE ACTIVITY RATE FOR SWIMMING, 1970, 1985, 2000

1. U.S. Swimming Activity Days (ORRRC)
   a. In 1960—5.15 Activity Days Per Person
   b. In 2000—10.42 Activity Days Per Person
   c. The increase is 102.3%
2. Northeast Swimming Activity Days
   a. In 1960—6.82 Activity Days Per Person
   b. 6.82 X 102.3% = 6.98 Activity Days Per Person Increase by 2000
   c. 6.82 + 6.98 = 13.80 Activity Days Per Person in 2000
3. The Swimming activity rate per person increased 6.98 between 1960 and 2000, an annual increase of .1745
4. 1970 rate = 10(.1745) + 6.82 = 8.565 Swimming Activity Days Per Person
   1985 rate = 25(.1745) + 6.82 = 11.1825 Swimming Activity Days Per Person
   2000 rate = 40(.1745) + 6.82 = 13.80 Swimming Activity Days Per Person

TABLE 2: ACTIVITY AND RECREATION DAYS PER PERSON IN 1970, 1985 AND 2000

	1970		1985		2000	
	Activity Days	Recreation Days	Activity Days	Recreation Days	Activity Days	Recreation Days
Swimming	8.565	4.283	11.183	5.592	13.800	6.960
Driving for Pleasure	8.020	4.010	9.205	4.602	10.390	5.195
Walking for Pleasure	7.298	3.649	8.380	4.190	9.460	4.730
Playing Outdoor Games	4.815	2.408	6.173	3.087	7.530	3.760
Picnicking	3.208	1.604	3.805	1.903	4.400	2.220
Sightseeing	2.689	1.344	3.734	1.867	4.790	2.340
Fishing	1.947	.973	2.235	1.117	2.530	1.260
Bicycling	1.770	.885	2.034	1.017	2.300	1.150
Boating	1.764	.882	2.337	1.169	2.910	1.470
Sledding	1.336	.668	1.771	.885	2.210	1.100
Ice Skating	1.260	.630	1.673	.837	2.090	1.050
Nature Walking	1.260	.630	1.448	.724	1.640	.820
Attending Outdoor Sports	1.255	.627	1.413	.707	1.570	.780
Hunting	.598	.299	.598	.299	.590	.290
Camping	.518	.259	.800	.400	1.080	.540
Water Skiing	.428	.214	.635	.317	.840	.420
Hiking	.418	.209	.636	.318	.860	.430
Attending Outdoor Concerts	.405	.203	.518	.259	.630	.310
Horseback Riding	.322	.161	.367	.183	.410	.200
Snow Skiing	.230	.115	.344	.172	.460	.230
Sailing	.130	.065	.170	.085	.210	.100
Canoeing	.110	.055	.148	.074	.190	.090
Mountain Climbing	.092	.046	.137	.068	.180	.090
Totals	48.438	24.219	59.744	29.872	71.070	35.535

purpose of this study, it was assumed that, on the average, a person will participate in two recreation activities per day. The total number of activity days per person for each activity was then divided by two to arrive at recreation days (see Table 2).

Since many people travel long distances to participate in outdoor recreation, interregional trips by New Jersey residents within New Jersey and out-of-state residents recreating in New Jersey were considered in the demand derivation. ORRRC reported the total away recreation days occurring during the 1960 peak season as 8.6 days per person in the Northeast region.[2] However, ORRRC did not forecast the peak season away days for the Northeast region, and it was necessary to apply the nationally projected increase in away days to the Northeast rates resulting in 9.82 in 1970, 11.77 in 1985, and 13.10 in 2000. The home days per person were derived by subtracting the away days from the total recreation days as indicated below.

	1970	1985	2000
Total Recreation Days	24.22	29.87	35.54
Away Days	—9.82	—11.77	—13.10
Home Days	14.40	18.10	22.44

The distribution of away days and home days for each activity was based upon the percent distribution data for the major purpose of trips and outings reported by ORRRC.[3] The final determination of recreation days occurring away from home was based upon judgment as to a reasonable relation

[2] *ORRRC Report #19*, p. 369, Table 5.43.

[3] *Ibid.*, p. 363, Table 5.37.

between total recreation days and away days for each activity. The distribution of home recreation days was then determined by subtracting the estimated away days from the total recreation days.

To determine the total recreation demand, the home and away recreation days were treated separately. Since home based recreation demand will occur in the region of residence, it was assumed that home recreation demand is a function of the population of each region. Therefore, the home recreation days for each activity were multiplied by the 1970 population of each region to yield peak season home recreation demand for each region. This procedure was repeated for 1985 and 2000 using population forecasts and activity rate projections.

$$\text{Region Population} \times \text{Recreation Day} = \text{Home Recreation Demand during Peak Season}$$

Since away demand involves an interregional and interstate trip, the total away recreation demand in New Jersey was first estimated and then distributed to the regions based on some measure of relative attractiveness of the various recreation regions; that is, those areas in the State where people are most likely to travel to satisfy their recreation desires.

All away demand occurs on either an outing, trip or vacation. In order to estimate away demand, the number of persons taking outings, trips or vacations in New Jersey must be ascertained. Based upon time-distance travel patterns, two ranges of travel were established: one for vacations and trips and one for outings.

A Recreational Sphere of Influence consisting of 19 counties from the neighboring states of Delaware, Maryland, New York, and Pennsylvania was defined for New Jersey. Based upon travel time patterns for recreation, driving time from out-of-state regions to major New Jersey recreation areas, New Jersey's unique and highly developed shore, and statistical data on the origin of out-of-state visitors to New Jersey recreation areas, the RSI was judged the most significant contributor of out-of-state visitors to New Jersey's recreation areas.[4]

[4] Data extracted from a study conducted by the Department of Conservation and Economic Development entitled "Report on New Jersey's Vacation Guests in 1962."

For study purposes, it was assumed that all out-of-state away demand originated from within the bounds of New Jersey's RSI. However, it must be noted that not all of New Jersey's away demand originates within the RSI. But the recreation influence of a larger area would be extremely difficult to analyze in terms of population, relative attractiveness of New Jersey recreation areas and other factors.

New Jersey and its RSI were divided into eleven zones and a centroid was then selected for each zone. It was assumed all travel emanating from the zone originated at that point. Two circles were drawn, one for vacations and trips and one for outings with radii corresponding to appropriate travel distances. (Refer to map entitled "Influence Areas For Away Demand.")

From the 1960 Census of Housing the number of vacation homes within each travel range circle was determined. The proportion of total vacation homes in New Jersey within the travel range circle of a zone was used to estimate the tendency of people from that particular zone to satisfy in New Jersey their away demand occurring on vacations, trips and outings.

The number of away days, 9.82 days per person in 1970, is comprised of 5.72 days for vacations and trips and 4.10 days for outings.[5] Multiplying 5.72 days per person times the population of each region yields the total number of vacation and trip recreation days produced by that particular zone. By repeating this procedure and inserting 4.10 days as the multiplier, the total number of outing recreation days produced by each region is obtained. The percent of vacation homes contained in the travel range for vacations and trips for each zone located in New Jersey is applied to the total number of vacation and trip recreation days produced by that particular zone. The results represent the proportion of each region's vacation and trip recreation days that will be satisfied in New Jersey. This procedure is repeated using the percent of vacation homes located in New Jersey within each zone's outing travel range and the outing recreation days produced by that particular

[5] The breakdown of away days into vacations, trips, and outings is based on the ORRRC distribution of away days: ORRRC Report #26, p. 24, Table 7.

INFLUENCE AREA FOR AWAY DEMAND

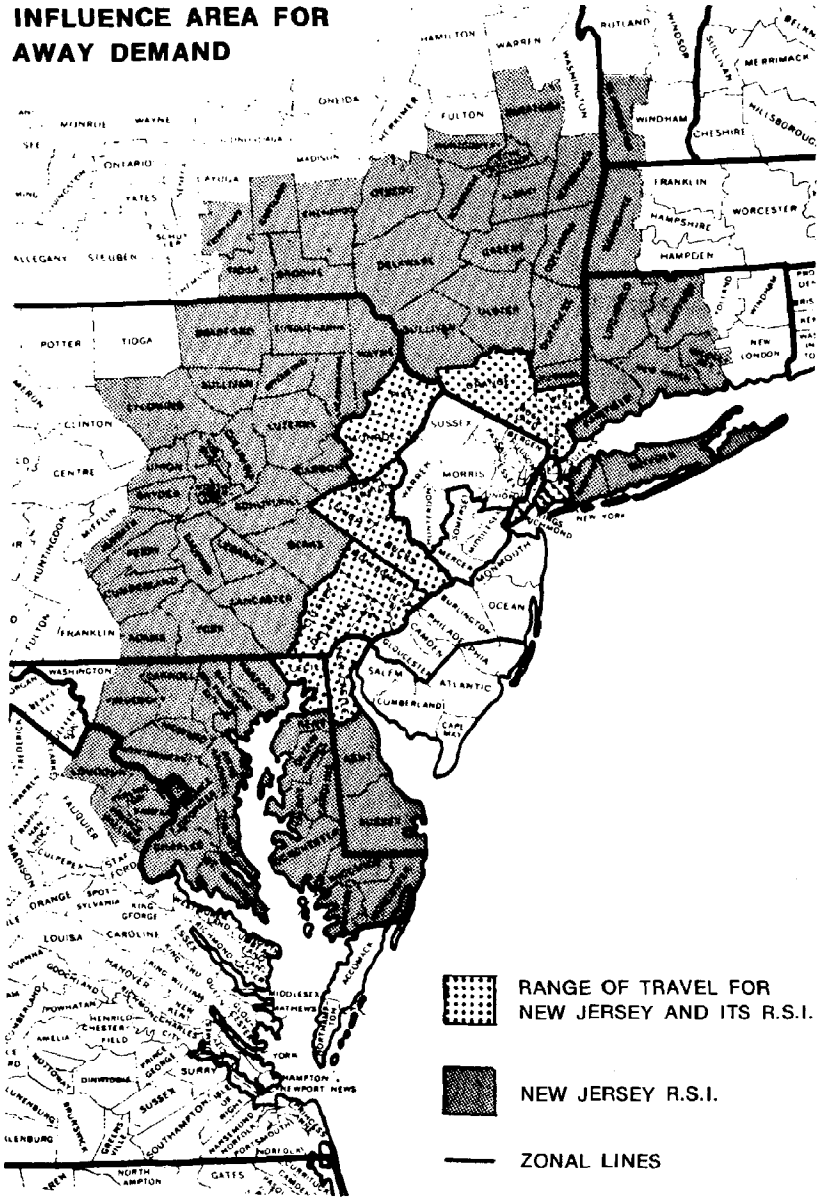


TABLE 3: VACATIONS AND TRIPS AWAY DEMAND IN NEW JERSEY 1970

Zone	(1) 1970 Zonal Population	(2) (col. 1 x 5.72) population times vacation & trip days per person (5.72)	(3) percent of total vacation homes with zonal vacation & trips travel range in New Jersey	(4) (col. 2 x col. 3) zonal vacation & trip days times % New Jersey vacation homes
Recreational Sphere of Influence				
1	2,897,295	16,572,527	39.78	6,592,551
2	4,970,465	28,431,060	36.54	10,388,709
3	1,341,870	7,675,496	33.66	2,583,572
4	57,240	327,413	34.85	114,103
5	884,728	5,060,644	64.18	3,247,921
6	3,450,754	19,738,313	69.19	13,656,939
7	439,147	2,511,921	61.72	1,550,358
New Jersey				
North	4,045,741	23,141,639	37.52	8,682,743
Central	1,086,153	6,212,795	50.29	3,124,415
North Shore	1,602,404	9,165,751	67.69	6,204,297
South Shore	433,866	2,481,714	61.06	1,515,335
			Total Vacation & Trip Away Demand	57,660,943

Recreational Sphere of Influence

1 – Kings and Richmond counties, New York
2 – Bronx, New York and Queens counties, New York
3 – Orange, Rockland and Westchester counties, New York
4 – Monroe and Pike counties, Pennsylvania
5 – Bucks, Lehigh and Northhampton counties, Pennsylvania
6 – Chester, Delaware, Montgomery, and Philadelphia counties, Pennsylvania
7 – Cecil County, Maryland and New Castle County, Delaware

New Jersey

North Zone – Bergen, Essex, Hudson, Hunterdon, Morris, Passaic, Sussex, Union and Warren counties
Central Zone – Mercer, Middlesex and Somerset counties
North Shore Zone – Camden, Gloucester and Monmouth counties, also northern sections of Burlington and Ocean counties
South Shore Zone – Atlantic, Cape May, Cumberland and Salem counties, also southern sections of Burlington and Ocean counties

TABLE 4: OUTING AWAY DEMAND IN NEW JERSEY 1970

Zone	(1) 1970 Zonal Population	(2) (col. 1 x 4.10) population times outing days per person (4.10)	(3) percent of total vacation homes within zonal outing travel range in New Jersey	(4) (col. 2 x col. 3) zonal outing days times % New Jersey vacation homes
Recreational Sphere of Influence				
1	2,897,295	11,878,910	38.97	4,629,211
2	4,970,465	20,378,907	31.71	6,462,151
3	1,341,870	5,501,667	17.52	963,892
4	57,240	234,684	17.73	41,609
5	884,728	3,627,385	61.45	2,229,028
6	3,450,754	14,148,091	57.60	8,149,300
7	439,147	1,800,503	72.22	1,300,323
New Jersey				
North	4,045,741	16,587,538	91.92	15,247,265
Central	1,086,153	4,453,227	51.28	2,283,615
North Shore	1,602,404	6,569,856	77.65	5,101,493
South Shore	433,866	1,778,851	66.87	1,189,518
			Total Outing Away Demand	47,597,405
			Total Vacation & Trip Away Demand	57,660,943
			Total Away Demand	105,258,348

Recreational Sphere of Influence

1 – Kings and Richmond counties, New York
2 – Bronx, New York and Queens counties, New York
3 – Orange, Rockland and Westchester counties, New York
4 – Monroe and Pike counties, Pennsylvania
5 – Bucks, Leheigh and Northhampton counties, Pennsylvania
6 – Chester, Delaware, Montgomery, and Philadelphia counties, Pennsylvania
7 – Cecil County, Maryland and New Castle County, Delaware

New Jersey

North Zone – Bergen, Essex, Hudson, Hunterdon, Morris, Passaic, Sussex, Union and Warren counties
Central Zone – Mercer, Middlesex and Somerset counties
North Shore Zone – Camden, Gloucester and Monmouth counties, also northern sections of Burlington and Ocean counties
South Shore Zone – Atlantic, Cape May, Cumberland and Salem counties, also southern sections of Burlington and Ocean counties

region to determine the number of outing recreation days contributing to New Jersey's demand. The total peak season away demand for New Jersey was then determined by adding the total vacation and trip recreation days with the outing recreation days (see Tables 3 and 4).

The total away demand for New Jersey must then be distributed to the various regions. It was felt that at the state level the attendance at public facilities would be a more valid measure of the recreational attractiveness of the various regions than the number of vacation homes. The attendance figures of all state and federal facilities in New Jersey and those county and municipal facilities which had an away demand were compiled by region, and the total away demand was distributed by each region's percentage of attendance at public recreation facilities. Table 5 indicates the distribution format.

The regional away demand was then distributed among the various recreational activities according to each activity's percentage of the total away days per person. In estimating the away recreation demand in New Jersey for the years 1985 and 2000 the same procedures were followed utilizing forecasted data.

To determine how much of the home and away peak season demand for each activity occurred on an average weekend day, New Jersey's state parks and forests attendance figures were studied. It was found that about 2% of the total peak season attendance occurred on an average weekend. Therefore, with the exception of ice skating, the home and away peak season demands for each activity were multiplied by the peaking factor, 2%, to yield the average weekend home and away demands during the peak season.

For ice skating, the demand for each region was apportioned to the two types of facilities: natural ice areas and artificial ice areas. Temperature data obtained from the U.S. Weather Bureau indicated that climatic conditions in the northern regions would permit a greater proportion of the ice skating demand to be met at natural ice areas than in the southern regions. Therefore, a percentage distribution for ice skating demand was determined for each region based upon the tem-

perature data. The 2% peaking factor was then applied to the artificial ice demand to yield the average weekend peak season demand for ice skating on artificial ice. Since the number of days with subfreezing temperatures varies from region to region, separate natural ice skating peaking factors were determined for each region.

The appropriate peaking factor was then applied to the natural ice skating demand for each region to yield peak season weekend day demand for that particular region. Table 6 indicates the natural ice skating peaking factor.

TABLE 5: AWAY DEMAND DISTRIBUTION

Recreation Region	% Public Facility Attendance
Northwest	7.79
North Central	11.64
Northeast	3.66
Central Corridor	2.67
North Shore	24.54
Southwest	3.08
South Shore	44.22
Delaware Bay	2.40
	100.00%

TABLE 6: PEAKING FACTORS NATURAL ICE SKATING

Northwest	20%
North Central	20%
Northeast	25%
Central Corridor	25%
North Shore	25%
Southwest	35%
South Shore	35%
Delaware Bay	40%

APPENDIX C

FEDERAL RECREATION AREAS—1971

	Administering Agency	County	Total Acres	1970 Attendance
Northwest Region			16,368	815,300
Delaware Water Gap National Recreation Area	National Park Service	Sussex & Warren	16,368	815,300**
North Central Region			6,856	542,000
Morristown National Historic Park	National Park Service	Morris	1,367	401,000
Great Swamp National Wildlife Refuge	Fish & Wildlife Service	Morris	5,489	141,000
Northeast Region			16	55,900
Edison National Historic Site	National Park Service	Essex	16	55,900
North Shore Region			733	27,248
Barnegat National Wildlife Refuge	Fish & Wildlife Service	Ocean	652	27,248
Bay Head-Manasquan Canal	U.S. Corps of Enginners	Monmouth	43	*
Manasquan River Channel	U.S. Corps of Enginners	Monmouth	36	*
Leonardo	U.S. Coast Guard	Monmouth	2	*
South Shore Region			20,631.3	164,557
Brigantine National Wildlife Refuge	Fish & Wildlife Service	Atlantic	19,645	164,557
Cape May Canal	U.S. Corps of Engineers	Cape May	568	*
Cape May Receiving Station	U.S. Coast Guard	Atlantic	418	*
Brigantine Mooring	U.S. Coast Guard	Atlantic	0.3	
Delaware Bay Region			635	*
Killcohook National Wildlife Refuge	Fish & Wildlife Service	Salem	635	*
State Totals			45,239.3	1,605,005

*Attendance figures are not available.

**Includes 4,115 acres of land managed by permit.

APPENDIX D

STATE PARKS—1971

	County	Total Acres	Water Acres	1971 Attendance
Northwest Region				
Allamuchy	Warren & Sussex	21,502	1,353	815,938
Cranberry Lake	Sussex	1,266	54	2,050
Finesville	Warren	199	129	*
Hacklebarney	Hunterdon	3		*
High Point	Sussex	2		**
Hopatcong	Sussex	12,372	80	395,304
Musconetcong	Sussex	15	3	**
Stephens	Warren	245	230	36,070
Swartswood	Sussex	133		107,545
Voorhees	Hunterdon	1,253	602	104,742
Wawayanda	Sussex	437		67,382
		5,577	255	102,845
North Central Region				
Allamuchy	Morris	7,940	270	417,058
Farny	Morris	1,009	50	**
Great Piece Meadows	Morris	803		*
Greenwood Lake	Passaic	79		*
Hacklebarney	Morris	2,567	12	*
Hopatcong	Morris	550		90,556
Musconetcong	Morris	92	13	227,980
Ringwood	Passaic	97	85	**
Stephens	Morris	2,206	100	98,522
Wawayanda	Passaic	89		**
		448	10	**
Northeast Region				
Great Piece Meadows	Essex	1,299	35	*
Liberty	Hudson	113		*
Ringwood	Bergen	281		*
		905	35	**
Central Corridor Region				
Cheesequake	Middlesex	3,025	28	708,404
Duck Island	Mercer	1,001	10	141,524
Edison	Middlesex	123	15	*
Hacklebarney	Somerset	35	.5	*
Millstone River	Somerset	17		**

*Attendance figures are not available.

**Attendance for area is reported under another region.

(continued)

APPENDIX D (continued)

Pigeon Swamp	Middlesex	792		*
Princeton Battlefield	Mercer	185		*
Washington Crossing	Mercer	51		*
Washington Rock	Somerset	785	2	515,092
		36		51,788
North Shore Region				
Allaire	Monmouth	8,530	113	1,814,492
Barnegat	Ocean	2,021	20	279,703
Double Trouble	Ocean	31	19	183,076
Island Beach	Ocean	1,614	35	*
Monmouth Battlefield	Monmouth	2,694		567,366
Sandy Hook	Monmouth	1,375		*
		795	39	784,347
Southwest Region				
Duck Island	Burlington	2,794	5	
Hawk Island	Burlington	58	5	**
Inskip	Gloucester	2		*
Mount Laurel	Burlington	1,658		*
Rancocas	Burlington	20		*
		1,056		*
South Shore Region				
Cape May Point	Cape May	690	4	
Corson's Inlet	Cape May	151	4	*
Great Sound	Cape May	341		*
		198		*
Delaware Bay Region				
Fort Mott	Salem	1,229	111	232,042
Parvin	Salem	104	2	52,757
		1,125	109	179,285
State Totals		47,009	1,919	3,987,934

*Attendance figures are not available. **Attendance for area is reported under another region.

APPENDIX E

STATE FORESTS — 1971

	County	Total Acres	Water Acres	1971 Attendance
Northwest Region		21,023	143	221,119
Jenny Jump	Warren	967	33	21,241
Stokes	Sussex	14,232	55	136,733
Worthington	Warren	5,824	55	63,145
North Central Region		4,150	25	12,460
Hewitt, Abram S.	Passaic	1,890	25	5,255
Norvin Green	Passaic	2,260		7,205
North Shore Region		9,309	50	
Lebanon	Ocean	9,309	50	**
Southwest Region		60,318	188	56,626
Bass River	Burlington	30		**
Lebanon	Burlington	17,704	108	56,626
Wharton	Burlington & Camden	42,584	80	**
South Shore Region		79,189	220	727,115
Bass River	Burlington & Ocean	9,070	65	137,980
Penn	Burlington	3,366		49,616
Wharton	Burlington & Atlantic	57,053	75	412,220
Belleplain	Cape May	9,700	80	127,299
Delaware Bay Region		1,523	8	
Belleplain	Cumberland	1,523	8	**
State Totals		175,512	634	1,017,325

**Attendance for area is reported under another region.

APPENDIX F

STATE RECREATION AREAS — 1971

	County	Total Acres	Water Acres	1971 Attendance
Northwest Region		6,208	3,640	104,811
Bull's Island	Hunterdon	80		7,971
Round Valley	Hunterdon	4,003	2,350	*
Spruce Run	Hunterdon	2,125	1,290	96,840
State Totals		6,208	3,640	104,811

**Attendance figures are not available.

APPENDIX G

DESIGNATED STATE NATURAL AREAS — 1971 *

	County	Total Acres	Water Acres
Northwest Region		446	5
Bursch Sugar Maple	Warren	25	
Whittingham	Sussex	400	5
Johnsonburg	Warren	11	
Osmun Forest	Warren	10	

*Attendance figures are not available.

North Central Region		294	
Troy Meadows	Morris	294	
Central Corridor Region		52	
Cook	Middlesex	52	
North Shore Region		108	
Swimming River	Monmouth	108	
South Shore Region		3,066	
Cape May Wetlands	Cape May	1,747	
Great Bay	Ocean	395	
Hammonton Lake	Atlantic	98	
North Brigantine	Atlantic	679	
Swan Point	Ocean	147	
Delaware Bay Region		100	
Cohansey	Cumberland	100	
State Totals		4,066	5

DEDICATED NATURAL AREAS WITHIN STATE PARKS

	County	Acres**
Northwest Region		
Kuser	Sussex	200
North Shore Region		
Island Beach	Ocean	800
State Total		1,000

**Dedicated areas are included in High Point State Park and Island Beach State Park acreage totals, respectively.

APPENDIX H

STATE MARINAS—1971

	County	Total Acres	Boating Berths
North Shore Region		23	305
Forked River	Ocean	15	105*
Leonardo	Monmouth	8	200*
South Shore Region		28	384
Atlantic City	Atlantic	28	384*
Delaware Bay Region		13	124
Fortescue	Cumberland	13	124*
State Totals		64	813

*Attendance figures are not available.

APPENDIX I

STATE HISTORIC SITES—1971

	County	Total Acres	1971 Attendance
Northwest Region		1.14	
Marshall House	Hunterdon	.53	*
Oxford Furnace	Warren	.61	*
Northeast Region		8.61	11,604
Boxwood Hall	Union	.40	1,631
Grover Cleveland Birthplace	Essex	2.14	2,209
Hermitage House	Bergen	5.00	*
Von Steuben House	Bergen	1.07	7,764

*Attendance figures are not available.

(continued)

APPENDIX I (*continued*)

	County	Total Acres	1971 Attendance
Central Corridor Region		14.54	6,547
Joyce Kilmer House	Middlesex	.18	*
Morven	Mercer	4.58	*
Old Dutch Parsonage	Somerset	.55	*
Princeton Battle Monument	Mercer	1.70	*
Rockingham	Somerset	5.36	3,912
Trenton Battle Monument	Mercer	.05	42
Wallace House	Somerset	1.52	2,593
Westminister House	Middlesex	.60	*
North Shore Region		7.34	58,338
Monmouth Battle Monument	Monmouth	3.22	*
Twin Lights	Monmouth	3.89	58,338
Veterans of All Wars Memorial	Ocean	.23	*
Southwest Region		10.4	3,996
Carranza Memorial	Burlington	9.5	*
Indian King Tavern	Camden	.16	2,409
Lawrence House	Burlington	.24	642
Walt Whitman House	Camden	.09	945
Whitman-Stafford House	Camden	.41	*
South Shore Region		3.84	2,205
Absecon Lighthouse	Atlantic	2.04	2,205
Somers Mansion	Atlantic	1.80	*
Delaware Bay Region		1.34	5,166
Hancock House	Salem	1.34	5,166
State Totals		47.21	87,856

*Attendance figures are not available.

APPENDIX J

STATE FISH & WILDLIFE MANAGEMENT AREAS
1971

	County	Total Acres	Water Acres
Northwest Region		9,831	299
Pequest	Warren	261	
Clinton	Hunterdon	1,028	15
Flatbrook	Sussex	1,948	100
Hamburg Mt.	Sussex	3,637	
Walpack	Sussex	388	10
Roy	Sussex	287	30
Hainesville	Sussex	282	37
Lockwood Gorge	Hunterdon	260	30
Amwell Lake	Hunterdon	22	11
Rockport Game Farm	Warren	370	2
Hackettstown Hatchery	Warren	234	60
Whittingham	Sussex	1,114	4
North Central Region		5,285	60
Wanaque	Passaic	1,413	
Berkshire Valley	Morris	1,250	40
Black River	Morris	2,622	20
Central Corridor Region		135	20
VanNest Refuge	Mercer	98	2
Baldwin Lake	Mercer	37	18
North Shore Region		33,159	870
Colliers Mills	Ocean	11,962	350
Greenwood Forest	Ocean	8,959	206
Pasadena	Ocean	3,120	
Manchester	Ocean	2,377	5
Whiting	Ocean	1,191	4

**Attendance figures are not available.

Turkey Swamp	Monmouth	1,856	
Butterfly Bogs	Ocean	103	50
Forked River Game Farm	Ocean	538	7
Quail Farm	Ocean	289	1
Imlaystown Lake	Monmouth	30	27
Assunpink	Monmouth	2,609	150
Prospertown Lake	Ocean	125	70
Southwest Region		4,310	55
Medford	Burlington	214	
Winslow	Camden	1,716	30
Glassboro	Gloucester	2,337	5
Rowands Pond	Camden	13	3
Logan Pond	Gloucester	12	5
Harrisonville Lake	Gloucester	18	12
South Shore Region		30,261	4,976
Tuckahoe-Corbin City	Cape May & Atlantic	12,438	3,500*
Marmora	Cape May	4,161	500*
Dennis Creek	Cape May	5,021	500*
Peaslee	Cape May & Atlantic		
Port Republic	Atlantic	755	20*
Beaver Swamp	Cape May	2,675	175*
Stafford Forge	Ocean	2,789	200
Absecon	Atlantic	639	38
Swan Bay (Green Bay)	Burlington	818	28
Manahawkin	Ocean	965	15*
Delaware Bay Region		45,897	1,752
Millville	Cumberland	12,036	130
Heislerville	Cumberland	2,813	100*
Egg Island	Cumberland	4,990	500*
Dix	Cumberland	2,233	100*
Nantuxent	Cumberland	916	50*
Berrytown	Cumberland	1,611	
Peaslee	Cumberland	13,895	300
Mad Horse Creek	Salem	5,245	200*
Menantico Ponds	Cumberland	296	70
Clarks Pond	Cumberland	164	78
Greenwood Pond	Salem	57	
Maskells Mill Pond	Salem	57	33
Corson Tracts	Cumberland	446	20*
Osborne	Cumberland	183	30*
Fortescue	Cumberland	894	94*
Cedarville Ponds	Cumberland	42	34
Harrisonville Lake	Salem	19	13
State Totals		128,877	8,002

*Partially salt marsh.

APPENDIX K

PROPOSED STATE RESERVOIRS EXISTING ACREAGE—1971

	County	Total Acres
Central Corridor Region		
Six Mile Run	Somerset	754
North Shore Region		
Manasquan	Monmouth	15
State Total		769

APPENDIX L

STATE MISCELLANEOUS AREAS* — 1971

	County	Total Acres	Water Acres
Northwest Region		1,246	
Delaware & Raritan Canal	Hunterdon	192	
Natural Lands Trust	Hunterdon	36	
Middlesex BSA	Sussex	480**	
Beemerville	Sussex	538	
North Central Region		6,400	
North Jersey District Water Supply Comm.	Passaic	6,400**	
Northeast Region		14	10
Little Bush	Hudson	14	10
Central Corridor Region		1,414	
Old Airport Property	Mercer	121	
Delaware & Raritan Canal	Mercer Somerset Middlesex	1,293	
North Shore Region		120	
Colliers Mill Tract	Ocean	115	
Manasquan Canal	Ocean	5	
South Shore Region		95	
Natural Lands Trust	Cape May	95	
State Totals		9,289	10

*Attendance figures are not available.

**Under conservation easement.

APPENDIX M

HISTORIC SITES

New Jersey's historic sites on the National Register of Historic Landmarks, the National Register of Historic Places or the State Register of Historic Places

NOTE: All National Register of Historic Landmarks components (N.R.H.L.) and National Register of Historic Places components (N.R.H.P.) are included on the State Register of Historic Places (S.R.H.P.).

Northwest Region

HUNTERDON COUNTY

Marshall House (N.R.H.P.) State owned
60 Bridge Street
Lambertville

SUSSEX COUNTY

Merriam House (N.R.H.P.)
131 Main Street
Newton

WARREN COUNTY

Oxford Furnace (N.R.H.P.)
Washington Avenue and Cinder Street
Oxford Furnace

North Central Region

MORRIS COUNTY

George Vail House (N.R.H.P.)
Speedwell Avenue
Morristown

Morristown National Historical Park (N.R.H.L.)
Morristown and Harding Township

Speedwell Iron Works (N.R.H.P.)
Speedwell Avenue
Morristown

Speedwell Village (N.R.H.P.)
333 Speedwell Avenue
Morristown

Thomas Nast Home (Villa Fontana) (N.R.H.L.)
MacCulloch Avenue and Miller Road
Morristown

PASSAIC COUNTY

Ringwood Manor (N.R.H.L.)
Hewitt vicinity

Northeast Region

BERGEN COUNTY

The Hermitage (N.R.H.L.) State owned
335 North Franklin Turnpike
Ho-Ho-Kus

Palisades Interstate Park (N.R.H.L.)
West Bank of Hudson River

Seven Chimneys (N.R.H.P.)
25 Chimney Ridge Court
Washington Township, Westwood

Steuben House (N.R.H.P.) State owned
New Bridge Road
River Edge

ESSEX COUNTY

Edison National Historic Site (N.R.H.L.)
Main Street between Alden and Lakeside Streets
West Orange

Krueger Mansion (S.R.H.P.)
601 High Street
Newark

Sydenhave House (N.R.H.P.)
Old Road to Bloomfield
Newark

HUDSON COUNTY

Hudson Court Courthouse (N.R.H.L.)
Newark Avenue
Jersey City

Statue of Liberty National Monument (N.R.H.L.)

PASSAIC COUNTY

Dey Mansion (N.R.H.P.)
199 Totowa Road
Wayne

Great Falls of Paterson and Society for Useful Manufactures Historic District (N.R.H.P.)
Paterson

Von Duyne House (N.R.H.P.)
636 Fairfield Road
Wayne

UNION COUNTY

Boxwood Hall (Boudinot Mansion) (N.R.H.P.)
1073 East Jersey Street
Elizabeth

First Presbyterian Congregation of Connecticut Farms (N.R.H.P.)
Stuyvesant Avenue at Chestnut Street
Elizabeth

Central Corridor Region

MERCER COUNTY

Douglas House (N.R.H.P.)
John Fitch Way
Trenton

Grover Cleveland Home (Westland) (N.R.H.L.)
15 Hodge Road
Princeton

Henry House (N.R.H.L.)
Princeton University Campus
Princeton

(continued)

APPENDIX M (*continued*)

Joseph Hewes House (N.R.H.L.)
346 Snowden Lane
Princeton Township

Mc Call House (S.R.H.P.)
Cadwalder Park
Trenton

Mercer Street Friends Center
151 Mercer Street
Trenton

Morven (N.R.H.P.) State owned
Stockton Street
Princeton

Nassau Hall (N.R.H.L.)
Princeton University Campus
Princeton

Old Barracks (N.R.H.P.)
South Willow Street
Trenton

Princeton Battlefield (N.R.H.L.) State owned
Princeton Battlefield State Park
Princeton

Temple-Ryan Farm (N.R.H.P.)
2306 Pennington Road
Hopewell

Washington Crossing State Park (N.R.H.L.) State owned
Washington Crossing vicinity

William Trent House (N.R.H.L.)
539 South Warren Street
Trenton

MIDDLESEX COUNTY

Ivy Hall (N.R.H.P.)
1225 River Road
Piscataway

Old Cranbury School (N.R.H.P.)
23 North Main Street
Cranbury

Proprietory House (N.R.H.P.)
149 Kearny Avenue
Perth Amboy

SOMERSET COUNTY

Frelinghuysen House (N.R.H.P.)
Raritan

Old Dutch Parsonage (N.R.H.P.) State owned
65 Washington Place
Somerville

Rockingham (N.R.H.P.)
Route 518
Rocky Hill

Wallace House (N.R.H.P.) State owned
38 Washington Place
Somerville

North Shore Region

MONMOUTH COUNTY

Christ Episcopal Church (N.R.H.P.)
92 King's Highway
Middletown

Deserted Village of Allaire (S.R.H.P.) State owned
Allaire State Park
Routes 549 and 524
Wall Township

Monmouth Battlefield (N.R.H.L.) State owned
Northwest of Freehold on Route 522
Manalapan and Freehold Townships

Sandy Hook Light (N.R.H.L.)
Sandy Hook

Twin Lights (Navesink Lighthouse) (N.R.H.P.)
Highlands

OCEAN COUNTY

Barnegat Light (N.R.H.P.)
Long Beach Island

Hangar No. 1, Lakehurst Naval Air Station (N.R.H.L.)
Lakehurst vicinity

Southwest Region

BURLINGTON COUNTY

Hopkinson House (N.R.H.L.)
Park & Farnsworth Avenue
Bordentown

Kirby's Mill (N.R.H.P.)
Church Road and Fostertown Road
Medford

CAMDEN COUNTY

Indian King Tavern (N.R.H.P.)
23 Kings Highway
Haddonfield

Newton Friends' Meeting House (N.R.H.P.)
722 Cooper Street
Camden

Pomona Hall (N.R.H.P.)
Park and Euclid Avenue
Camden

Taylor House (N.R.H.P.)
304 Cooper Street
Camden

Walt Whitman House (N.R.H.L.)
330 Mickle Street
Camden

South Shore Region

ATLANTIC COUNTY

Absecon Lighthouse (N.R.H.P.) State owned
Pacific and Rhode Island Avenues
Atlantic City

"Lucy" the Elephant (N.R.H.P.)
Decatur and Atlantic Avenues
Margate City

Somers Mansion (N.R.H.P.) State owned
Shore Road and Circle
Somers Point

BURLINGTON COUNTY

Atsion (S.R.H.P.) State owned
Route 206
Atsion

Batsto Village (N.R.H.P.) State owned
Route 542
Wharton State Forest, Batsto

CAPE MAY COUNTY

Cape May Historic District (N.R.H.P.)
Cape May

Delaware Bay Region

CUMBERLAND COUNTY

Greenwich Historic District (N.R.H.P.)
Greenwich

Potter's Tavern (N.R.H.P.)
49-51 Broad Street
Bridgeton

SALEM COUNTY

Hancock House (N.R.H.P.) State owned
Hancock Bridge

APPENDIX N

NATURAL AREAS

FEDERAL AND INTERSTATE NATURAL AREAS

North Central Region

Great Swamp National Wildlife Refuge (Morris County)
Jockey-Hollow Area, Morristown National Historic Park (Morris County)

Northeast Region

Greenbrook Sanctuary, Palisades Interstate Park (Bergen County)

AREAS WITHIN STATE PARKS AND FORESTS IDENTIFIED AS HAVING NATURAL SIGNIFICANCE

Northwest Region

Allamuchy Mountain State Park (5,850 acres)—Deer Park Pond, French's Pond and several isolated small ponds
Bull's Island Recreation Area (20 acres) (Hunterdon County)
Bursch Sugar Maple Natural Area (25 acres) (Warren County)
High Point State Park-Beaver Pond (670 acres) and Drydin Kuser Memorial (200 acres) (Sussex County). Drydin Kuser Memorial is a candidate for the National Register of Natural Landmarks.
Jenny Jump State Forest (150 acres) (Warren County)
Ken Lochwood Gorge (150 acres) (Hunterdon County)
Osmum Forest Natural Area (33 acres) (Warren County)
Stephen's State Park—Natural Area (35 acres) (Warren County)
Stokes State Forest—Tillman Ravine (1,500 acres) and Tinsley Trail (90 acres) (Sussex County)
Swartswood Lake Outlet (75 acres) (Sussex County)
Voorhees State Park (95 acres) (Hunterdon County)
Wawayanda State Park—Cedar Swamp (680 acres), Laurel Pond (680 acres), Ravine (810 acres) and Wawayanda Lake (115 acres) (Sussex County)
Whittingham Natural Area (400 acres) (Sussex County). Candidate for National Register of Natural Landmarks.

North Central Region

Hacklebarney State Park (52 acres) (Morris County)
Ringwood State Park—Hewitt Furnace (275 acres) and Stonetown Interpretive Areas (100 acres) (Passiac County)
Troy Meadows—Great Piece Meadows (5300 acres). Candidate for National Register of Natural Landmarks.

Central Corridor Region

Assunpink Fish and Wildlife Management Area (150 acres) (Mercer County)
Cheesequake State Park—Natural Area (275 acres) (Middlesex County)
Millstone River (1,735 acres) (Somerset County)
Penns Neck Natural Area (40 acres) (Mercer County)
Pigeon Swamp State Park (3200 acres) (Middlesex County)
Trenton Marshes (1,460 acres) (Mercer County)
Washington Crossing State Park—Natural Area (160 acres) (Mercer County)

North Shore Region

Allaire State Park—Natural Area (445 acres) (Monmouth County). Candidate for National Register of Natural Landmarks.
Great Bay (5000 acres—partially State owned) (Ocean County)
Island Beach State Park (800 acres) (Ocean County)
Oakhurst (70 acres) (Monmouth County)
Sandy Hook State Park—Natural Area (170 acres) (Monmouth County). Candidate for the National Register of Natural Landmarks.
Swimming River Natural Area (150 acres) (Monmouth County)

Southwest Region

Lebanon State Forest—McDonald's Branch (215 acres) and Mount Laurel (21 acres) (Burlington County)

Rancocas State Park—Natural Area (240 acres) (Burlington County)
West Plains (1,085 acres—partially State owned) (Burlington and Ocean Counties). Candidate for National Register of Natural Landmarks.
Wharton State Forest—Atsion—Quaker Bridge Road—Railroad Crossing (50 acres), Delellette Mistletoe Woods (50 acres) and Skit Branch (85 acres) (Burlington County)

South Shore Region

Bass River State Forest—Eastern shore of Lake Absegami (75 acres) (Burlington County)
Belleplain State Forest—Nature Area (22 acres) (Cape May County)
Cape May Wetlands (2000 acres—partially State owned) (Cape May County)
Cedar Island (200 acres) (Cape May County). Candidate for National Register of Natural Landmarks.
Hammonton Lake Natural Area (18 acres) (Atlantic County)
North Brigantine Natural Area (970 acres) (Burlington and Atlantic counties). Candidate for National Register of Natural Landmarks.
Strathmere Point (90 acres) (Cape May County)
Timber and Beaver Swamp Fish and Wildlife Management Areas (300 acres) (Cape May County)
Wharton State Forest—Batsto Interpretive Center (35 acres), Batsto Nature Area and Forge Pond (515 acres), Catica Ridge—Martha Natural Area (440 acres), Lower Forge (55 acres), and Quaker Bridge (58 acres) (Atlantic, Burlington and Ocean counties)

Delaware Bay Region

Cohansey Natural Area (12,400 acres—partially State owned) (Cumberland County)
Parvin State Park (200 acres) (Salem County)

COUNTY NATURAL AREAS

North Central Region

Great Swamp Nature Center (Morris County)
Jefferson Reservation (Morris County)
Lewis Morris Park (Morris County)
Silas Condict Park (Morris County)
The Tourne Park (Morris County)

Northeast Region

Campgaw Mountain County Reservation (Bergen County)
Eagle Rock Reservation (Essex County)
Mills Reservation (Essex County)
South Mountain (Passaic County)
South Reservation (Essex County)
Watchung Reservation (Union County)
West Essex Park (Essex County)
Wildlife Center (Bergen County)

Central Corridor Region

Herrontown Woods (Mercer County)
John A. Roebling Memorial Park (Mercer County)

North Shore Region

Holmdel Park (Monmouth County)
Turkey Swamp Park (Monmouth County)

Southwest Region

Cherry Hill Nature Trail Area (Camden County)

MUNICIPAL NATURAL AREAS

Northwest Region

Readington Tract—Readington Township (Hunterdon County)

(continued)

APPENDIX N (*continued*)

Northeast Region

Closter Nature Center—Closter Boro (Bergen County)
Cora Hartshorn Arboretum and Bird Sanctuary—Millburn Township (Essex County)
Hawes School Outdoor Laboratory—Glen Rock Boro (Bergen County)
Mountainside Park—Upper Montclair Town (Essex County)
Nishaume Park—Montclair Town (Essex County)
Norwood Park—Norwood Boro (Bergen County)
Orchard School Outdoor Laboratory—Ridgewood Village (Bergen County)
Spring Avenue and Grove Street Preserve—Ridgewood Village (Bergen County)
Tenafly Nature Center—Tenafly Boro (Bergen County)

Central Corridor Region

Autumn Hill—Princeton Township (Mercer County)
Green Natural Area—Princeton Township (Mercer County)

Southwest Region

Crows Woods Nature Area—Moorestown Township (Camden County)
Mantua Township Recreation Area—Mantua Township (Gloucester County)
Runnemede Lake Park—Boro of Runnemede (Camden County)
Stokes Woods Bird Sanctuary—Moorestown Township (Burlington County)
Wenonah Woods—Wenonah Boro (Gloucester County)

South Shore Region

Cape May Point Bird Sanctuary—Cape May Point Boro (Cape May County)
Stone Harbor Bird Sanctuary—Boro of Stone Harbor (Cape May County)

PRIVATE NATURAL AREAS

Northwest Region

C. Dunham Park—South Branch Watershed Association (Hunterdon County)
Outdoor Education Center—Irvington Board of Education (Hunterdon County)
Packer's Island Tract—South Branch Watershed Association (Hunterdon County)
Riegel Ridge—Riegel Ridge Paper Company (Hunterdon County)

North Central Region

Dismal Harmony Brooks Natural Area—Dismal Harmony Brooks—Natural Area Committee (Morris County)
Drew Forest Preserve—Drew University (Morris County)
Green Camp of Cooper Union—College of New York City (Passaic County)
Schiff Scout Reservation—National Council Boy Scouts of America (Morris County)
Sussex Woodlands—Mr. Fred Ferber (Passaic County)
Valhalla Hemlock Glen—Brook Valley Incorporated (Morris County)

Northeast Region

Baldwin Wildlife Sanctuary—New Jersey Audubon Society (Bergen County)
Great Piece Meadows—Wildlife Preserves Incorporated (Essex County)
Indian Hills High School—Ramapo Board of Education (Bergen County)
Joyce Kilmer School Native Sanctuary—Mahwah Board of Education (Bergen County)
Lucine L. Lorrimer Sanctuary—New Jersey Audubon Society (Bergen County)

Central Corridor Region

Institute for Advanced Study—Institute for Advanced Study (Mercer County)

Outdoor Museum of Nature and Conservation Trails—National Headquarters Boy Scouts of America (Middlesex County)
Scherman Wildlife Sanctuary—New Jersey Audubon Society (Somerset County)
Stony-Brook Millstone Watershed—Stony-Brook Millstone Watershed Association (Mercer County)
Stony Ford Audubon Nature Sanctuary—National Audubon Society (Mercer County)
William S. Post Natural Area—Upper Raritan Watershed Association (Somerset County)

Southwest Region

Unexpected Wildlife Refuge—Mr. & Mrs. C. Buyuhmihci (Gloucester County)
Wedgewood Nature Area—Wedgewood Civic Association (Gloucester County)
Wildlife Refuge—Animal Welfare Association (Camden County)
Bennet Bog Wildlife Sanctuary—New Jersey Audubon Society (Cape May County)

APPENDIX O

LAND AND WATER CONSERVATION FUND IN NEW JERSEY (1965-1972)

One of the major purposes of the Land and Water Conservation Fund (L&WCF) is to assist state and local governments in providing recreation facilities. From the beginning of the program in 1965 through the end of the 1972 fiscal year, $18,146,520.90 in federal funds have been approved for recreation projects in New Jersey. Most of the projects assisted by these funds are already in use by the public but some are still in the construction stage. These funds, doubled by equal matching funds from state and local governments, have provided for the acquisition of 26,109 acres of park lands and fish and wildlife management areas and the development of recreation facilities, from beaches, pools and boating facilities to camp sites, picnic tables and outdoor games fields, to mention only the most frequently constructed facilities. Development funds were also used for the construction of support facilities including comfort stations, roadways and parking spaces.

Of the federal funds spent to date, 71% have gone for development projects, 29% for acquisition and less than 1% for planning. (See Table 1.) The use of L&WCF monies has

TABLE 1: LAND AND WATER CONSERVATION FUND IN NEW JERSEY FEDERAL FUNDS APPROVED FOR PROJECTS/ 1965-1972

	PROJECT BREAKDOWN		
Type of Project	**Local Program**	**State Program**	**State and Local Programs**
Acquisition	$ 915,000.00 (11%)	$4,343,353.00 (45%)	$ 5,258,353.00 (29%)
Development	7,664,853.69 (89%)	5,223,314.21 (54%)	12,888,167.90 (71%)
Planning	--	47,150.00 (1%)	47,150.00 (1%)
Totals	$8,579,853.69	$9,613,817.21	$18,193,670.90

been weighted in favor of development projects because of the availability of funds for acquisition from other federal, state and local sources, primarily the State's Green Acres Programs. Future distribution of funds will probably be more evenly shared by acquisition and development projects. Greater emphasis will be placed on using all available funding programs to acquire critically valuable or threatened open space before these areas are lost to other forms of land use inconsistent with environmental quality or open space and recreation needs.

The portion of the total federal funds used by the State during this period was only slightly greater than the amount spent of local projects. During the early stages of the program, local governments were not prepared to design and develop project proposals and, thus, lacking fundable local projects, the monies were spent on state projects. More recently many worthwhile proposals have been submitted by local governments and approved for funding.

A regional analysis of the approved projects shows that the Northwest Region received 30% ($5,639,282.39) of all the federal monies spent at state and local levels. (See Table 2.) This is followed closely by the Northeast Region with 23% ($4,192,506.89). On a statewide basis there is little relationship between the regional distribution of funds and the percent of the population living in the regions. For example, only 3% of the State's population lives in the Northwest while this region received 30% of the funds; on the other hand, 47% of the State's population lives in the Northeast Region which received 23% of the funds.

If the state and local programs are separated, however, the comparison of fund distribution to population is significantly different. A comparison of local L&WCF expenditures with resident population is more meaningful. The local program develops recreation facilities primarily for local residents. State funds, on the other hand, are invested in projects which do not serve a single region but rather the entire state population or several regions together. Overall, the locally used L&WCF monies were allocated to the regions with the greatest populations: The Northeast with 47% of the State's population received 49% of the funds.

REGIONAL ANALYSIS

Northwest Region—This region received $5,593,262.39 in L&WCF acquisition and development funds for state projects. Acquisition funds were used to purchase 3,958 acres of fish and wildlife management areas and to develop boat access sites on the Delaware River. The state development funds were used at four major sites: Spruce Run Reservoir ($2,665,530.64), Round Valley Reservoir ($834,005.02), Wawayanda State Park ($404,397.04) and at Lambertville on the Delaware River ($102,598.71). The types of facilities constructed included a wing dam to provide a recreation pool on the Delaware at Lambertville; a beach at Wawayanda; a dike, 4 beaches, 115 wilderness camp sites, 23.5 miles of trails, a boat launching ramp, and support facilities at Round Valley; and 100 camp sites, 100 picnic tables, a beach, a boat launching ramp, a fishing pier and support families at Spruce Run. In addition, 300 picnic tables ($4,691.00) were purchased and distributed to state sites throughout the region to replace existing inventory.

North Central Region—The North Central Region received $1,812,941.92 in federal funds for state development projects. All the funds were used at Ringwood State Park for construction of 2.58 miles of roadway and 422 parking spaces.

Northeast Region—In the Northeast Region $111,375.00 in federal L&WCF monies were spent by the State for acquisition of 482 acres at Skylands. No L&WCF monies were spent by the State for development projects.

Central Corridor Region—One state project using L&WCF monies was undertaken in this region. This project amounted to $20,000.00 and was part of the acquisition program to purchase land along the Delaware River to construct boat access sites. Local projects spent $1,514,309.26 to acquire 6.28 acres to provide picnicking and boat access and to develop outdoor games facilities, totlots, picnic tables, passive sitting areas, pools and other recreation and support facilities.

TABLE 2: LAND AND WATER CONSERVATION FUND IN NEW JERSEY
FEDERAL FUNDS APPROVED FOR PROJECTS/1965-1972

REGIONAL BREAKDOWN

State Program

Region	Acquisition		Development		Total A & D	
Northwest	$1,582,040.00	(36%)	$ 4,011,222.39	(77%)	$ 5,593,262.39	(58%)
North Central	1,224,468.00	(28%)	588,473.92	(11%)	1,812,941.92	(19%)
Northeast	111,375.00	(3%)	—		111,375.00	(1%)
Central Corridor	20,000.00	(1%)	—		20,000.00	(0)
North Shore	85,400.00	(2%)	245,267.66	(5%)	330,667.66	(3%)
Southwest	—		—		—	
South Shore	957,245.00	(22%)	373,362.58	(7%)	1,330,607.58	(14%)
Delaware Bay	362,825.00	(8%)	4,987.66	(0)	367,812.66	(4%)
Totals	$4,343,353.00	(45%)	$ 5,223,314.21	(55%)	$ 9,566,667.21	(100%)

Local Program

Region	Acquisition		Development		Total A & D	
Northwest	$ 45,000.00	(5%)	$ 1,020.00	(0)	$ 46,020.00	(0)
North Central	—		712,669.57	(9%)	712,669.57	(8%)
Northeast	800,000.00	(87%)	3,281,131.89	(42%)	4,081,131.89	(49%)
Central Corridor	70,000.00	(8%)	1,444,309.26	(19%)	1,514,309.26	(18%)
North Shore	—		963,578.16	(13%)	963,578.16	(11%)
Southwest	—		808,149.82	(11%)	808,149.82	(9%)
South Shore	—		346,832.47	(5%)	346,832.47	(4%)
Delaware Bay	—		107,162.52	(1%)	107,162.52	(1%)
Totals	$ 915,000.00	(11%)	$ 7,664,853.69	(89%)	$ 8,579,853.69	(100%)

State and Local Programs

Region	Acquisition		Development		Total A & D	
Northwest	$1,627,040.00	(31%)	$ 4,012,242.39	(31%)	$ 5,639,282.39	(30%)
North Central	1,224,468.00	(23%)	1,301,143.49	(10%)	2,525,611.49	(14%)
Northeast	911,375.00	(17%)	3,281,131.89	(26%)	4,192,506.89	(23%)
Central Corridor	90,000.00	(2%)	1,444,309.26	(11%)	1,534,309.26	(9%)
North Shore	85,400.00	(2%)	1,208,845.82	(9%)	1,294,245.82	(7%)
Southwest	—		808,149.82	(6%)	808,149.82	(5%)
South Shore	957,245.00	(18%)	720,195.05	(6%)	1,677,440.05	(9%)
Delaware Bay	362,825.00	(7%)	112,150.18	(1%)	474,975.18	(3%)
Totals	$5,258,353.00	(29%)	$12,888,167.90	(71%)	$18,146,520.90	(100%)

TABLE 3: LAND AND WATER CONSERVATION FUND IN NEW JERSEY FACILITIES CONSTRUCTED THROUGH LOCAL PROJECTS, BY REGION 1965-1972

Activity	Facility	Northwest	North Central	Northeast	Central Corridor	North Shore	Southwest	South Shore	Delaware Bay	Totals
Boating	Boat ramps		1		1	2		2		6
	Docks		10		10	2		20		42
Hiking	Trails (miles)		2	6		4				12
Equestrian	Trails (miles)		1	2						3
Bicycling	Trails (miles)						2			2
Nature	Trails (miles)		2	7		4	2			15
Skiing	Lifts		1							1
	Slopes		1	1						2
Camping	Sites		70	104			25			199
	Shelters		2	6		1	6	1		16
	Overnight shelters		15							15
Picnicking	Tables		202	557	110	240	126	52		1287
Skating	Ice Rinks'			1				1		2
Outdoor	Basketball Courts		4	14	8	11	9	2	1	49
Games &	Tennis Courts		4	43	41	33	16	1	3	141
Sports	Handball Courts		4	5		8				17
	Shuffleboard Courts		1	9		16	6	8		40
	Baseball Fields	1	8	19	6	12	13			59
	Softball Fields		1	3	4	5	8			21
	Football Fields		2	9	4	7	4			26
	Open Play Fields		2		1		1	1		5
	Tracks			2						2
	Sled Hills		2	1			1			4
	Totlots		4	28	13	19	14	4		82
Swimming	Wading/Spray Pools			4	2	1	3	1	1	12
	Portable Pools		1	34						35
	Intermediate Pools			6		1	1		1	9
	Community Pools			1	2		1		1	5
Other:	Passive Sitting Areas			10	3	9	2	1		25
	Senior Citizens Pavillion							1		1
Multi-Use	Impoundment Sites			3	3	3	2	1	1	13
	Dam Construction			1		1	1			3
Support Facility	Bath House		1		2		1	1	1	6
	Comfort Stations		3	15	8	7		8		41
	Park Roadway (miles)		2	5.5		3.1				11.6
	Parking Spaces		802	1710	400	1375		130		4437
	Maintenance Building			2	1	1		1		5
	Nature Building			3						3
	Boat House		1							1
	Concession Building		1							1
	Fish Ladders					1				1
	Bandshell		1	1	1					3

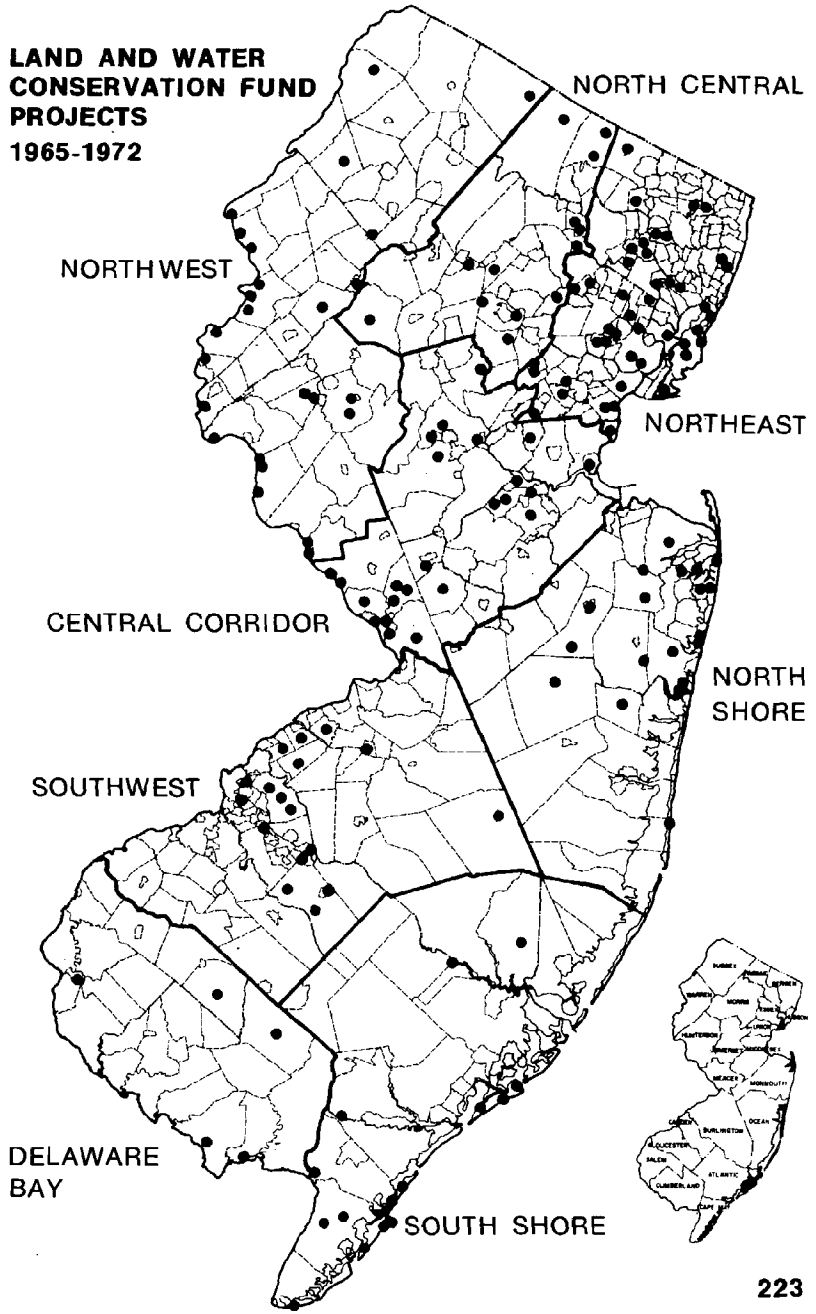
North Shore Region — In the North Shore Region the State spent $330,667.66 in federal L&WCF monies. These funds were used primarily at Sandy Hook ($162,141.66) and Island Beach ($82,700.00) state parks. At Sandy Hook a bath-house was built and at Island Beach a bath house, a nature center, 500 parking spaces and a water treatment plant were constructed. In addition, 25 picnic tables were purchased for $426 and distributed to state sites to replace existing tables.

Southwest Region — The Southwest Region received L&WCF monies totaling $808,149.82 only through local projects. The facilities developed included outdoor games facilities, totlots, picnic tables, pools, trails, passive sitting areas, camp sites and other recreation and support facilities.

South Shore Region — A total of $1,330,607.58 in federal L&WCF monies was spent on state projects in the South Shore Region. This sum was split between acquisition ($957,245.00) and development ($373,362.58). The acquisition program resulted in the purchase of 8,000 acres of fish and wildlife management areas. The development program included expansion of the Atlantic City Marina, construction of a boat ramp and 25 parking spaces on Dennis Creek, plus 100 picnic tables for state areas in the region.

Delaware Bay Region — The Delaware Bay Region received a total of $367,812.66 for state acquisition and development projects. The acquisition program purchased 5,273 acres of fish and wildlife management areas. Development projects included a boat ramp and 25 parking spaces at Mad Horse Creek and 25 picnic tables.

The local program totaled $107,162.52 for the development of outdoor games areas, pools and support facilities.



APPENDIX P

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